



RESERVOIR PERFORMANCE MONITOR

FILE NO:

COMPANY

LARAMIE ENERGY II LLC

WELL

NICHOLS 0994-13-21W

FIELD

VEGA

API NO:
05077104130000

COUNTY

MESA

STATE COLORADO

Ver. 4.10

LOCATION:

SHL 1779 FNL 2787 FEL
BHL 151 FNL 1606 FEL

SEC 24 TWP 9S RGE 94W

OTHER SERVICES
RAL

PERMANENT DATUM GL ELEVATION 7137 FT
LOG MEASURED FROM KB 24 FT ABOVE P.D.
DRILL. MEAS. FROM KB

ELEVATIONS:
KB 7161 FT
DF
GL 7137 FT

DATE 18-Mar-2018

RUN TRIP

2

1

SERVICE ORDER

USJ

DEPTH DRILLER

7834 FT

DEPTH LOGGER

7768 FT

BOTTOM LOGGED INTERVAL

7767 FT

TOP LOGGED INTERVAL

2414 FT

TIME STARTED

14:00

TIME FINISHED

19:00

OPERATOR RIG TIME

LOGGER

TYPE OF FLUID IN HOLE

WATER

FLUID DENSITY

NA

FLUID SALINITY

NA

FLUID LEVEL

48 FT

LOGGED CEMENT TOP

3488 FT

WELLHEAD PRESSURE

0 PSI

MAXIMUM HOLE DEVIATION

NA

NOMINAL LOGGING SPEED

17 FMN

MAX. RECORDED TEMP.

227 DEGF

REFERENCE LOG

BAKER HUGHES

REFERENCE LOG DATE

16-MAR-2018

EQUIP. NO. LOCATION

4291

GRAND JCT

RECORDED BY

R. ZUNIGA

WITNESSED BY

NA

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE THE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 2 TRIP 1: GR/CCL/RPM/TEMP RUN IN COMBINATION

LOGGED WITH 0 PSI AT WELLHEAD

SJ: 6027-6049

SJ: 6930-6948

CREW: R. ZUNIGA, J. PENA, A. SHAHNOOSHI

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
2	1	TELEMETRY	8250 EA/8248 ED	10185091/10323398	FREE
2	1	GR	8262 XA	10317216	FREE
2	1	RPM ELEC	8281 EA	10190985	FREE
2	1	RPM	8283 PA/8281 FA	10068031/10076673	FREE
2	1	TEMP	8255 XA	166341	FREE

G-SAND PNC 3D MODE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017

Patches: 3

Plotted: Sun Mar 18 20:03:30 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-13-21W/p353h03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2404.750 ft BOTTOM DEPTH: 3019.885 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM

RPM PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
PNC Parameters	BOREHOLE CONTENTS	FLUID		TOP	BOTTOM
	OPEN/CASED HOLE	CASED HOLE		"	"
	BOREHOLE SIZE	7.88	in	"	"
	LARGEST CASING OD	4.50	in	"	"
	MATRIX	SANDSTONE		"	"

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR	N/A	GAMMA RAY
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	N/A	SHORT SPACE COUNT RATE

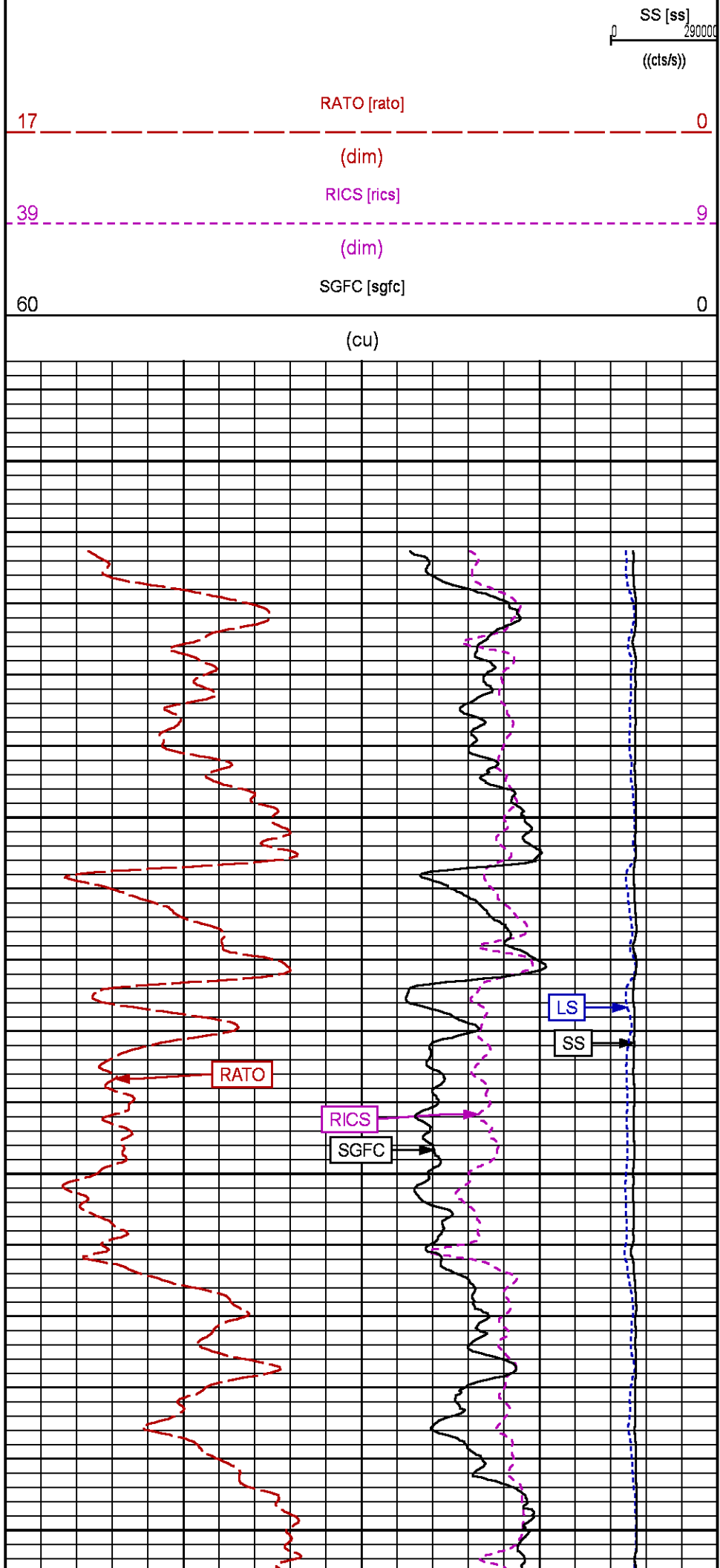
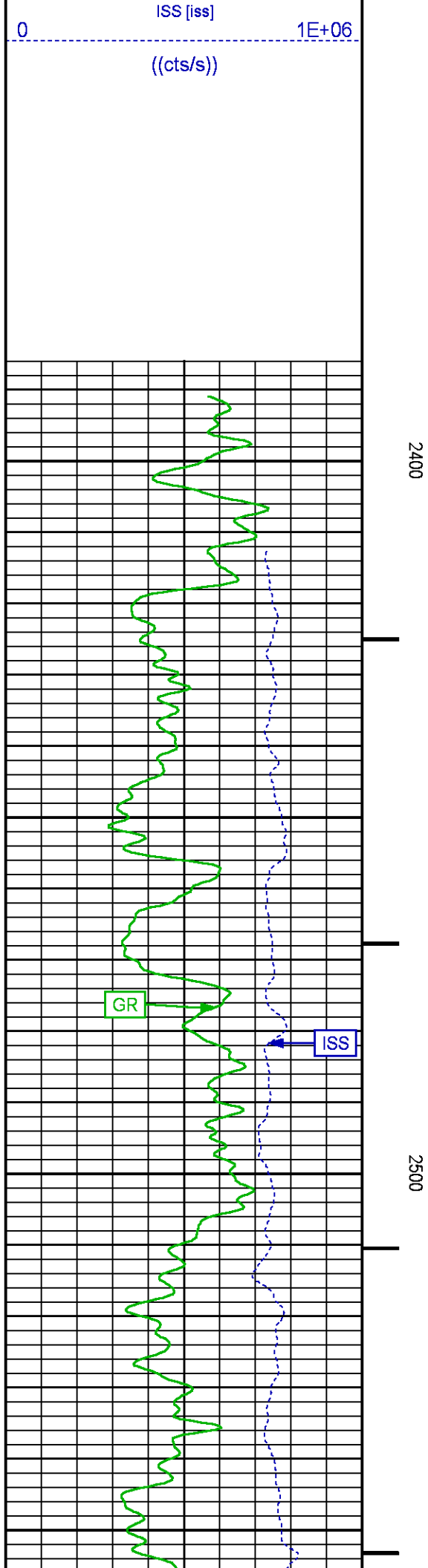
CURVE MEASURE POINT OFFSET

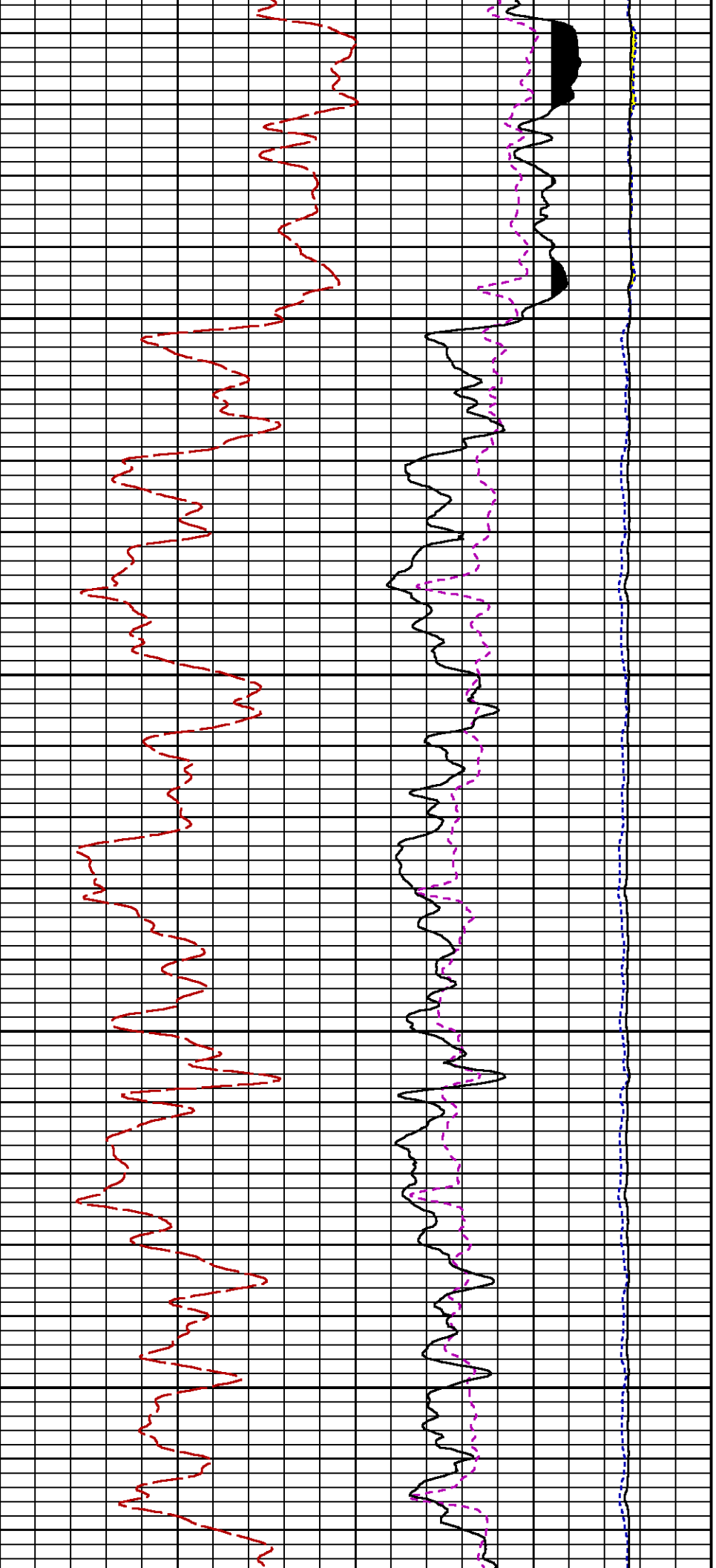
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-26.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-23.00	LS	-12.75	RICS	-12.75	SS	-12.75

Presentation : SysA:LARAMIE_RPM_GS.fvpdf [5"/100' Scale]
Plot Interval : 2386.75 - 3024.75 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-13-21W/RPM_GS.xtf
Created On : N/A
Company : LARAMIE ENERGY
Well : NICHOLS 0994-13-21W
Field : VEGA
File Interval : 2386.75 - 3026.25 Feet
OCT : p353h

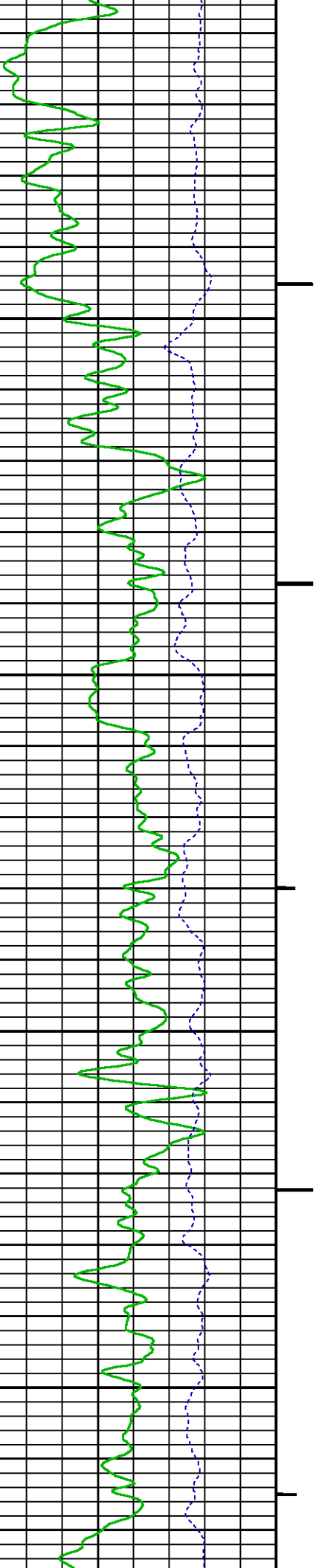


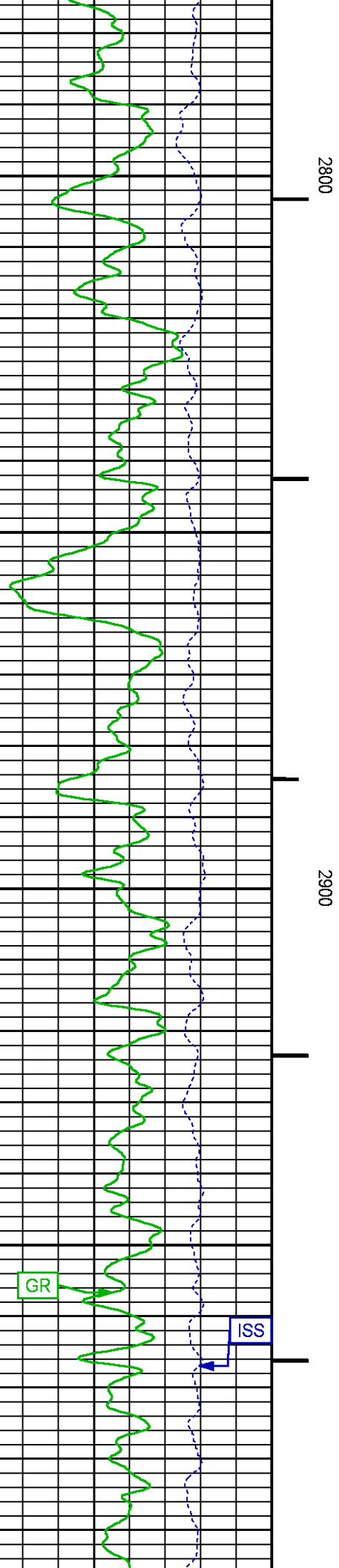
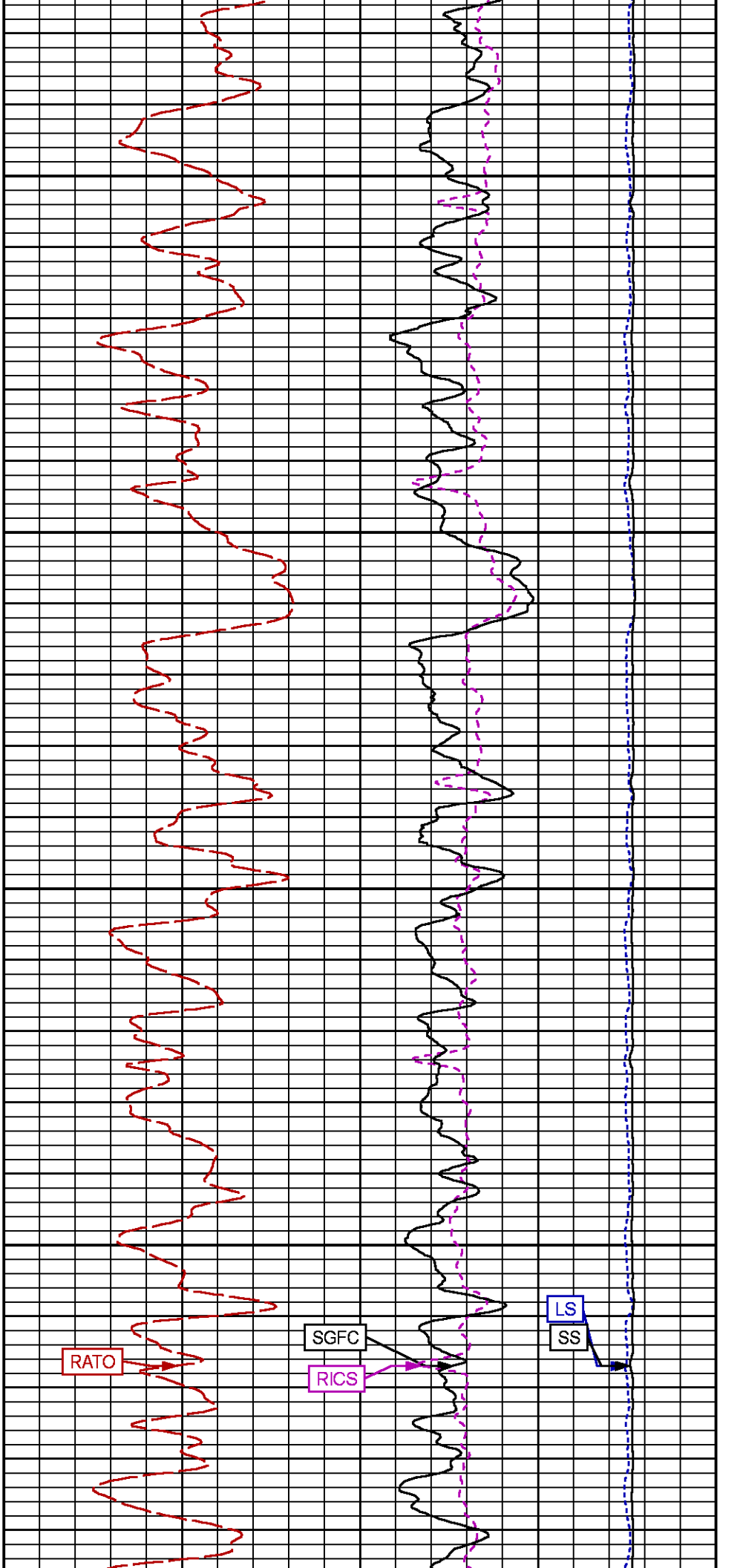


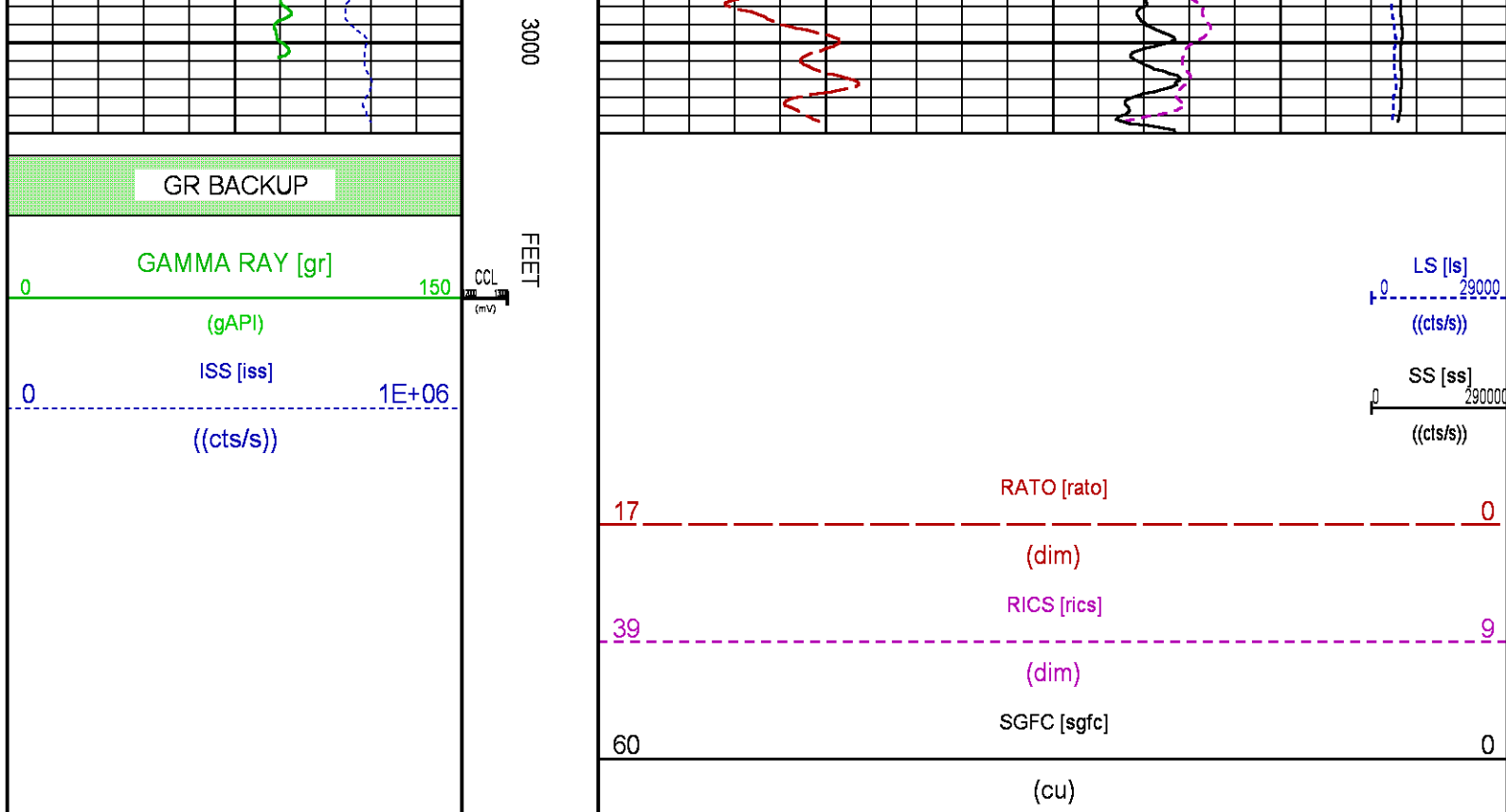


2600

2700







WILLIAMS FORK PNC 3D MODE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017

Patches: 3

Plotted: Sun Mar 18 19:07:17 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-13-21W/p353h02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4475.750 ft BOTTOM DEPTH: 7787.238 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
GR	FILTER ()	medium (1)		TOP BOTTOM

RPM PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
PNC Parameters	BOREHOLE CONTENTS	FLUID		TOP BOTTOM
	OPEN/CASED HOLE	CASED HOLE		" "
	BOREHOLE SIZE	7.88	in	" "
	LARGEST CASING OD	4.50	in	" "
	MATRIX	SANDSTONE		" "

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR	N/A	GAMMA RAY

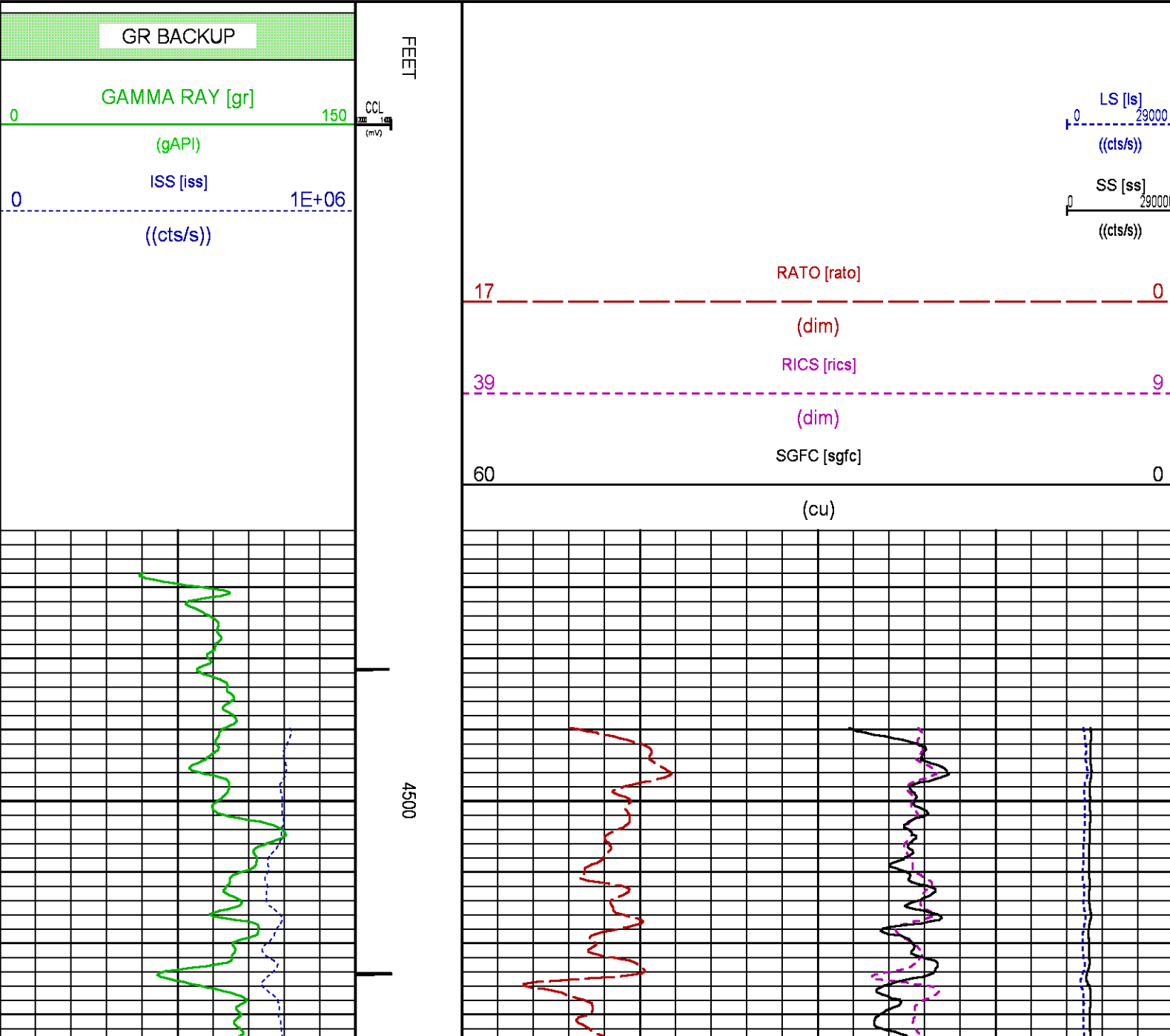
F1:GR	N/A	GAMMA RAY
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	N/A	SHORT SPACE COUNT RATE

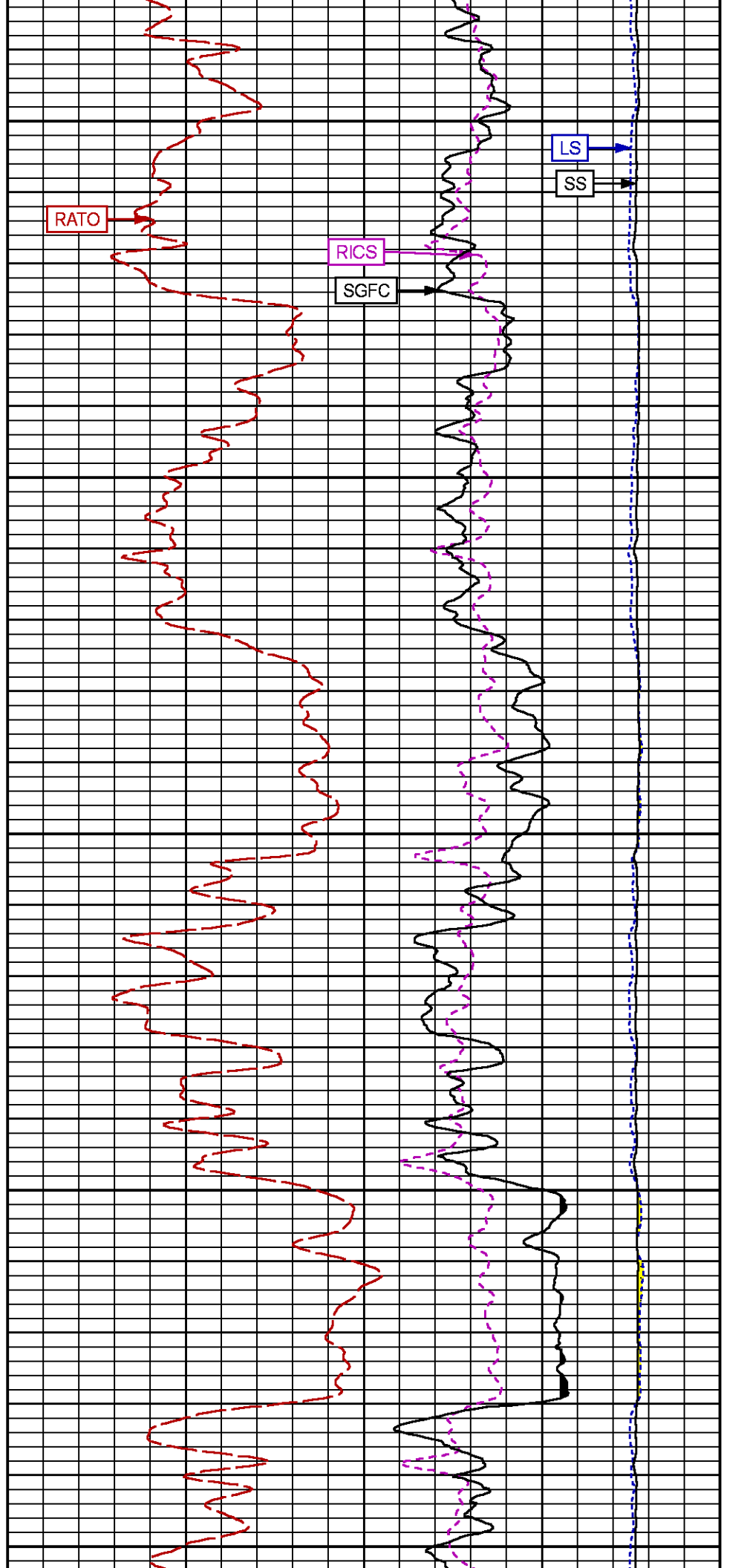
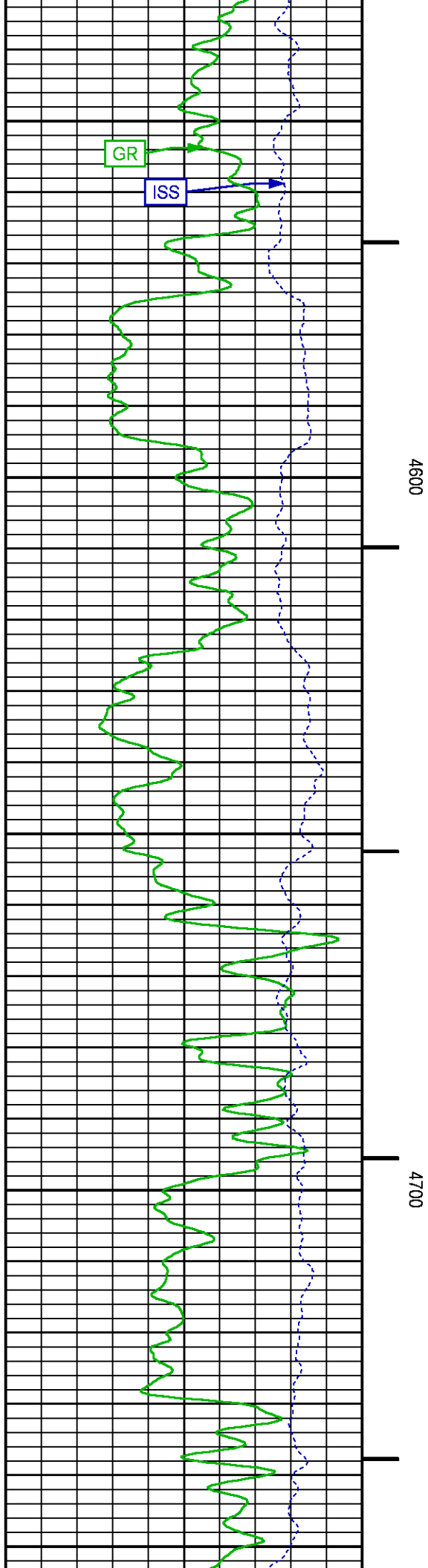
CURVE MEASURE POINT OFFSET

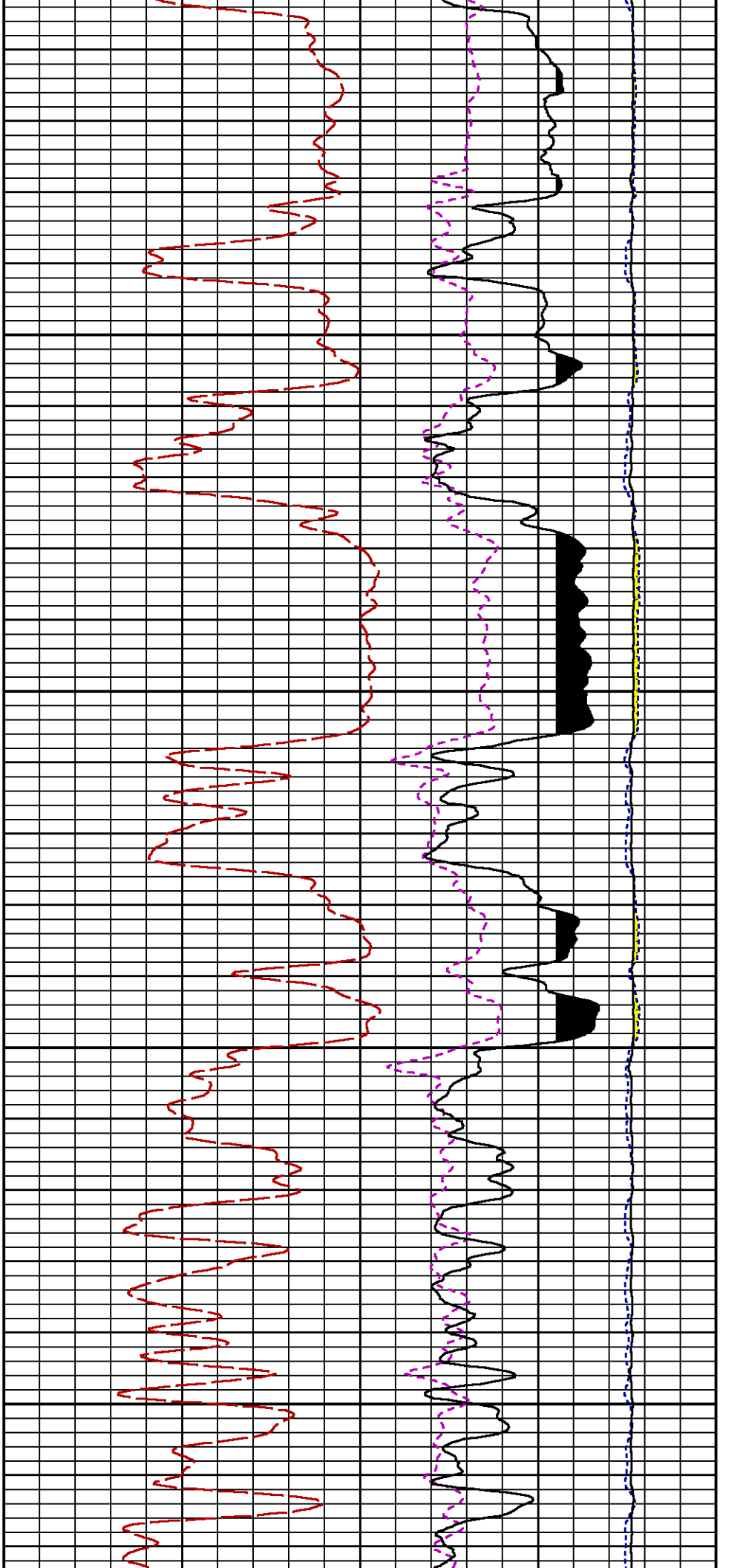
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-26.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-23.00	LS	-12.75	RICS	-12.75	SS	-12.75

Presentation Plot Interval
: SysA:LARAMIE RPM_WF.fvpdf [5"/100' Scale]
: 4463.75 - 7797.75 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-13-21W/RPM_WF.xtf
Created On : N/A
Company : LARAMIE ENERGY
Well : NICHOLS 0994-13-21W
Field : VEGA
File Interval : 4463.75 - 7799.25 Feet
OCT : p353h

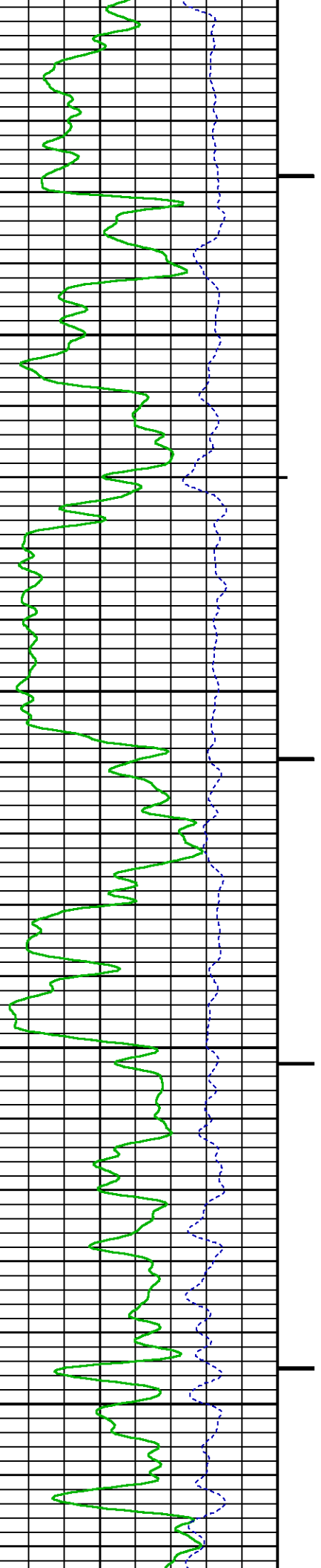


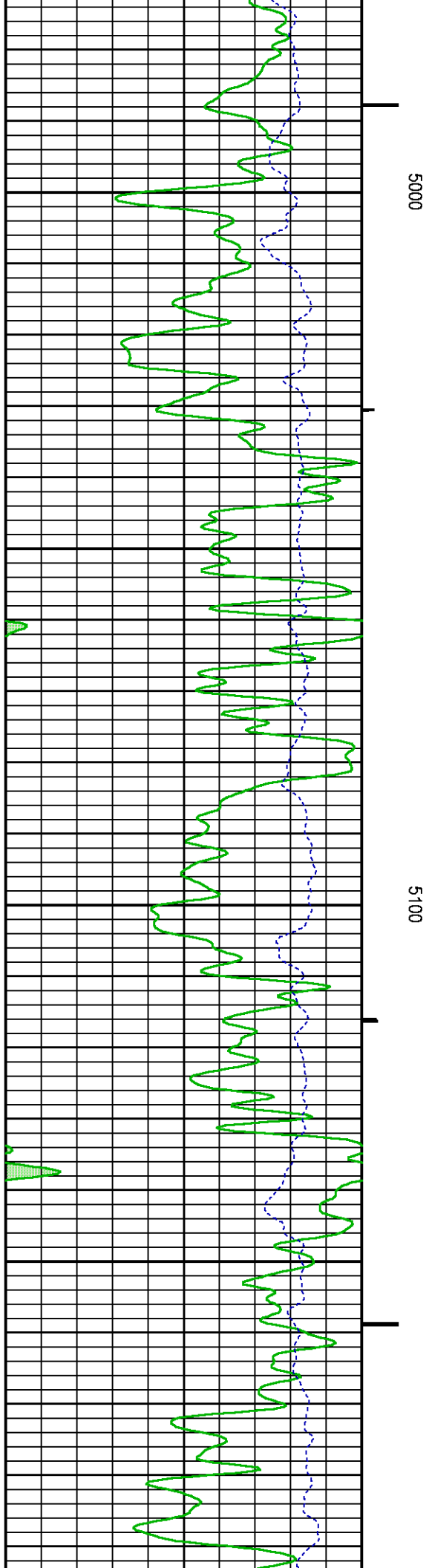
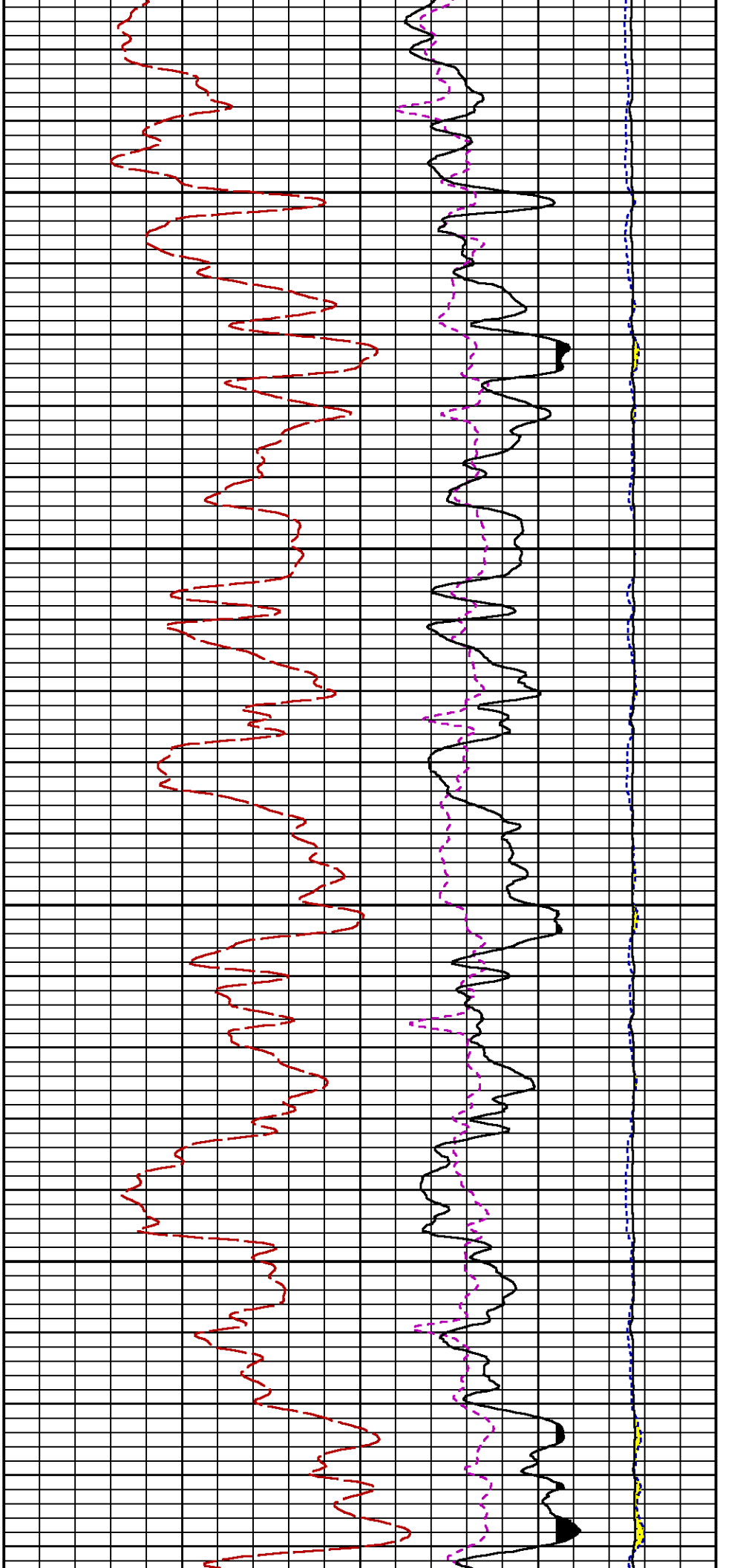


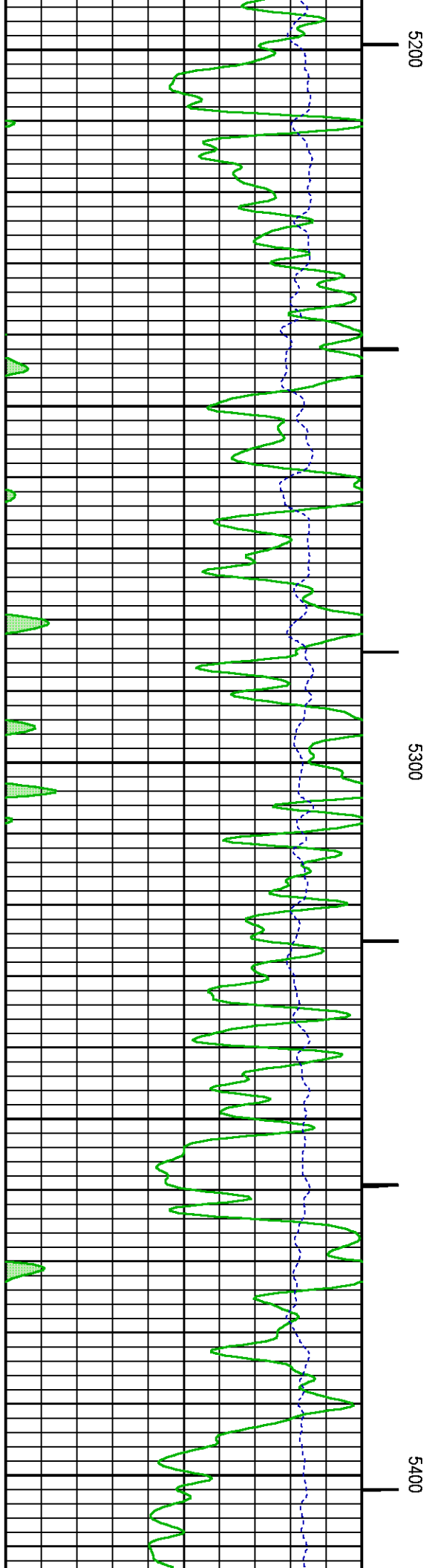
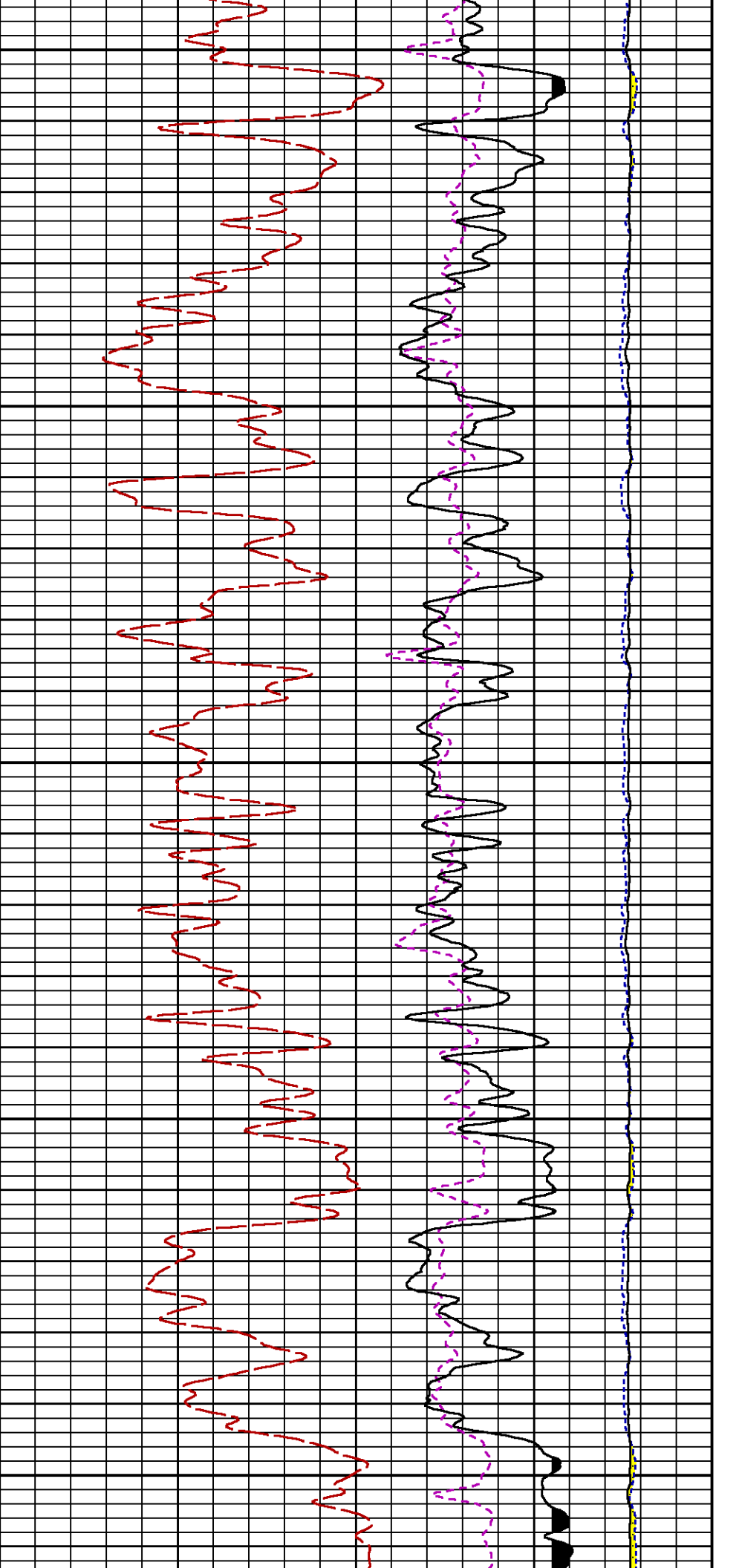


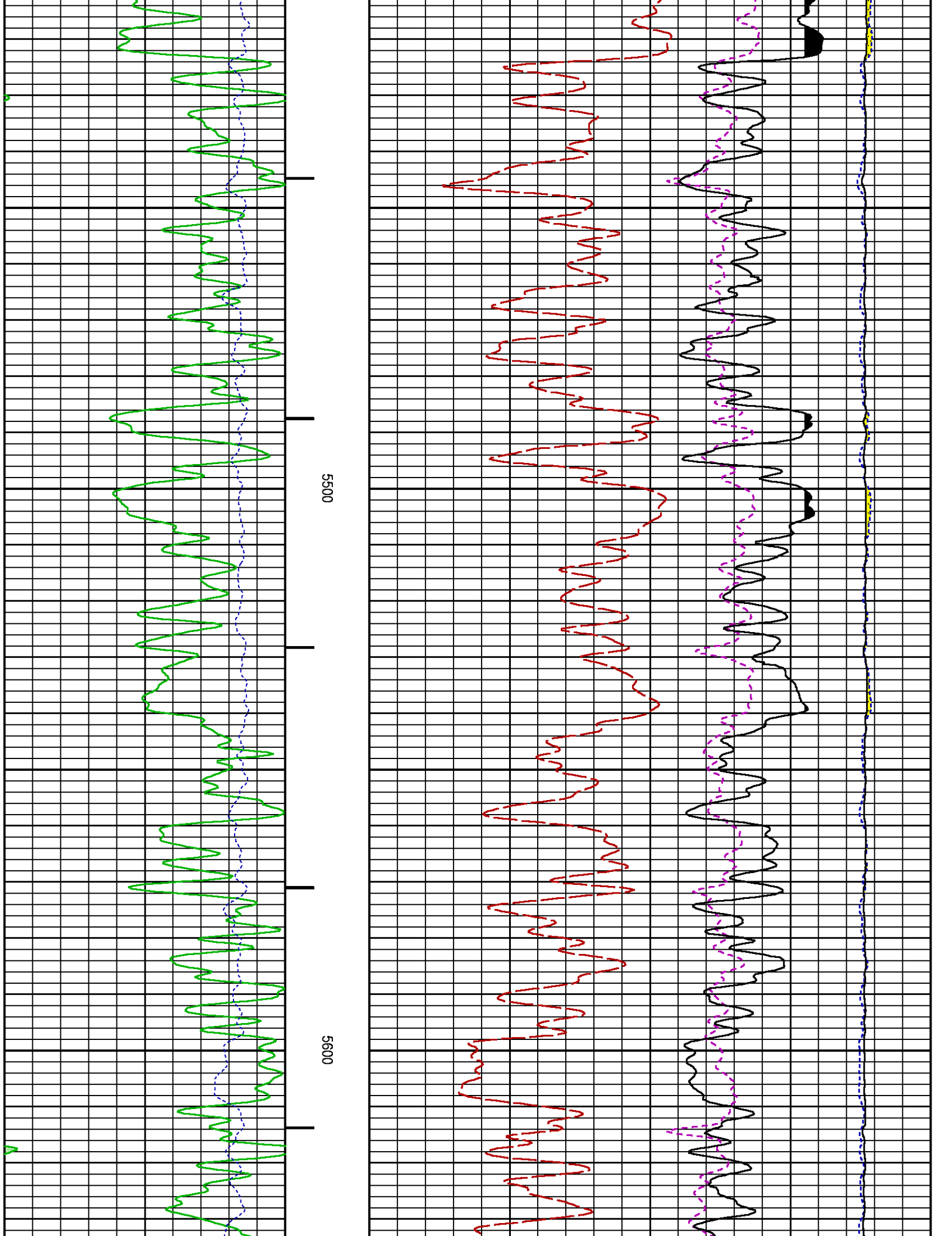
4800

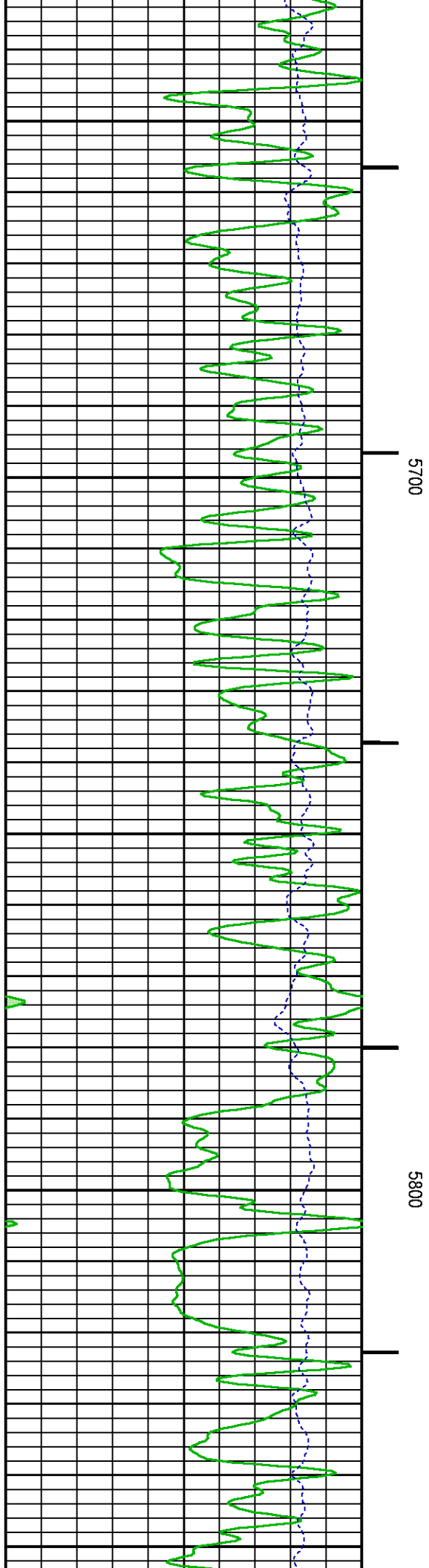
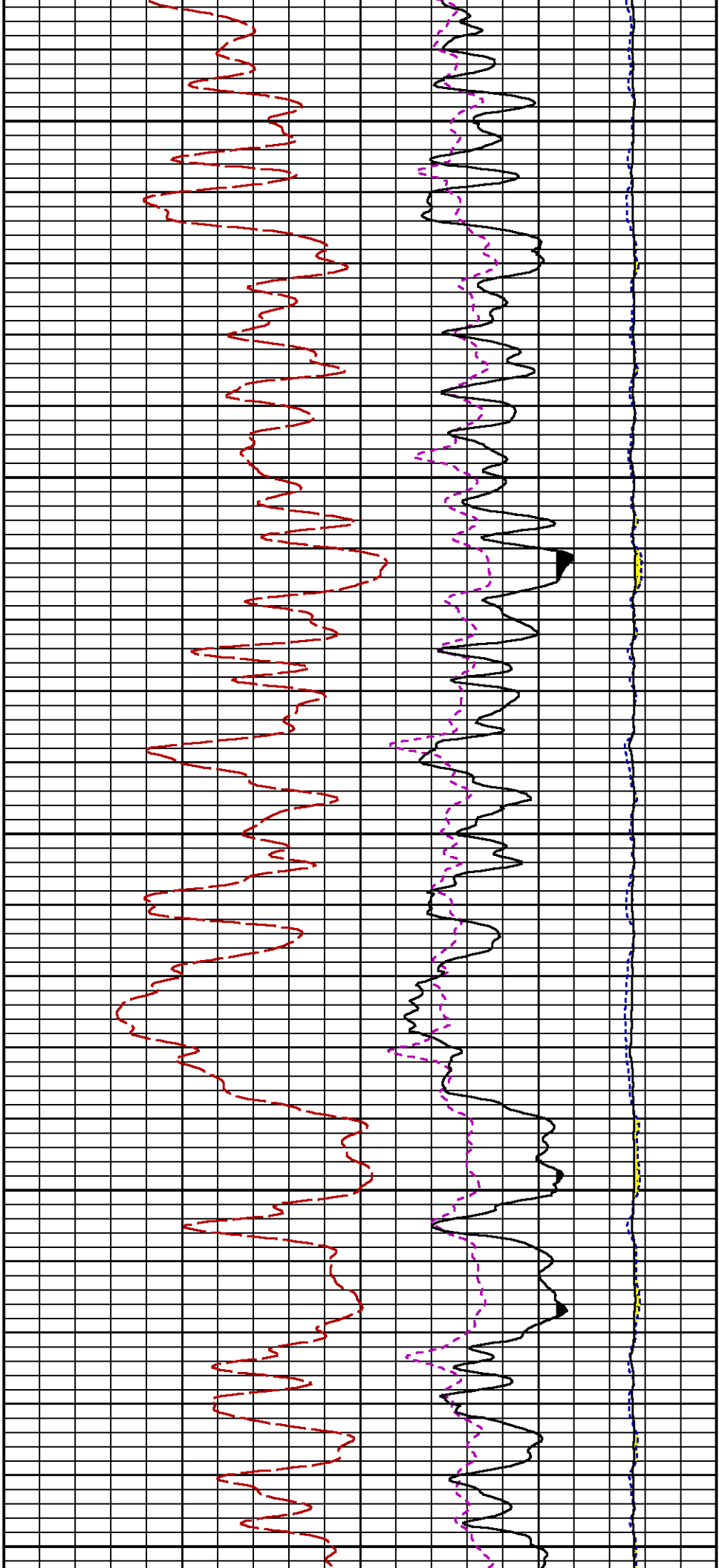
4900

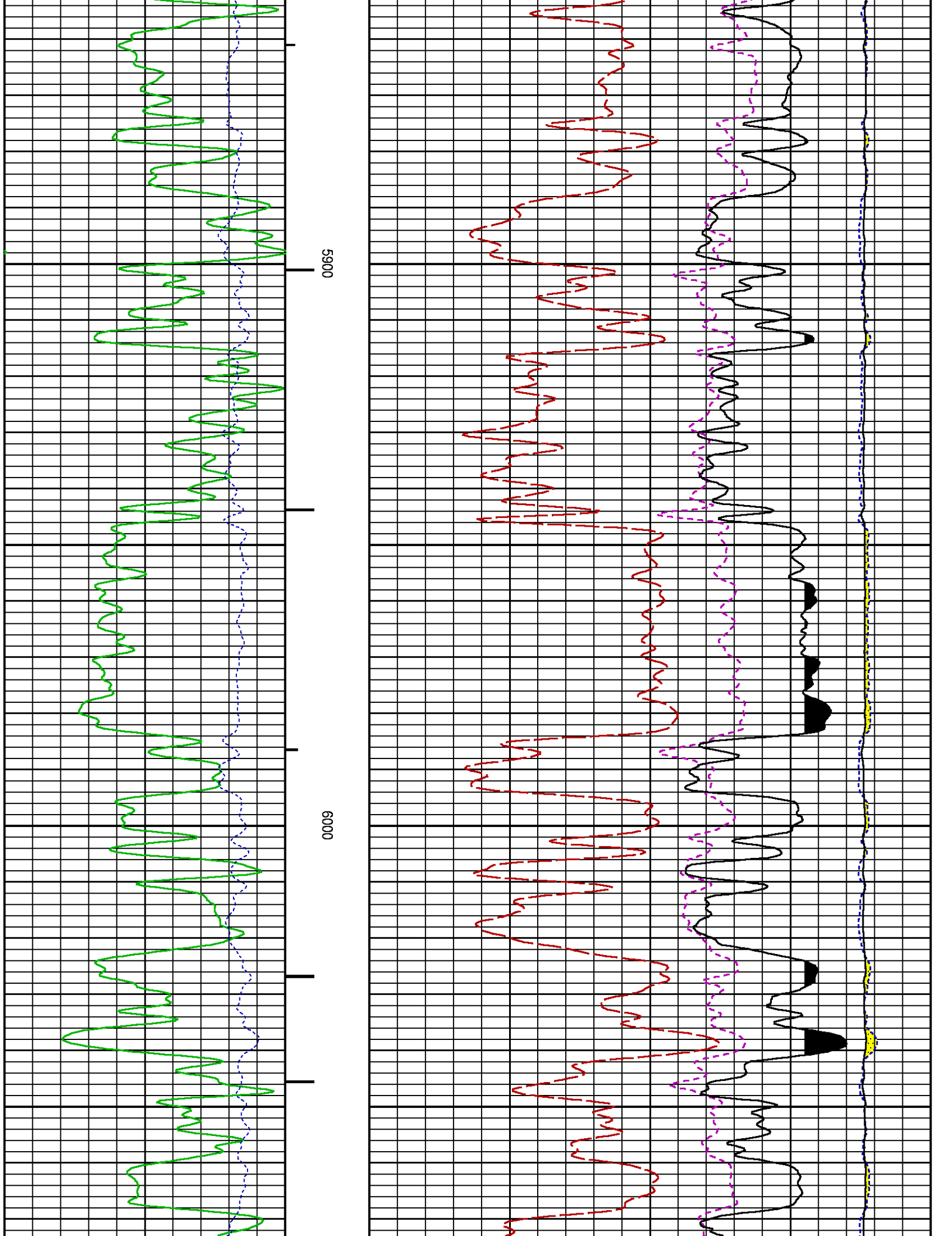


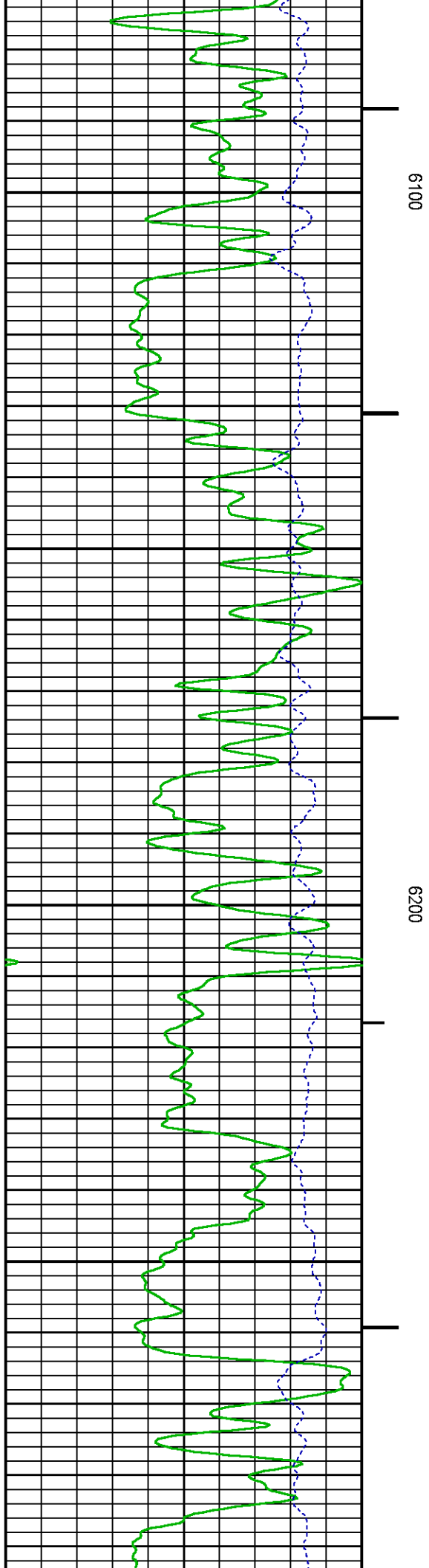
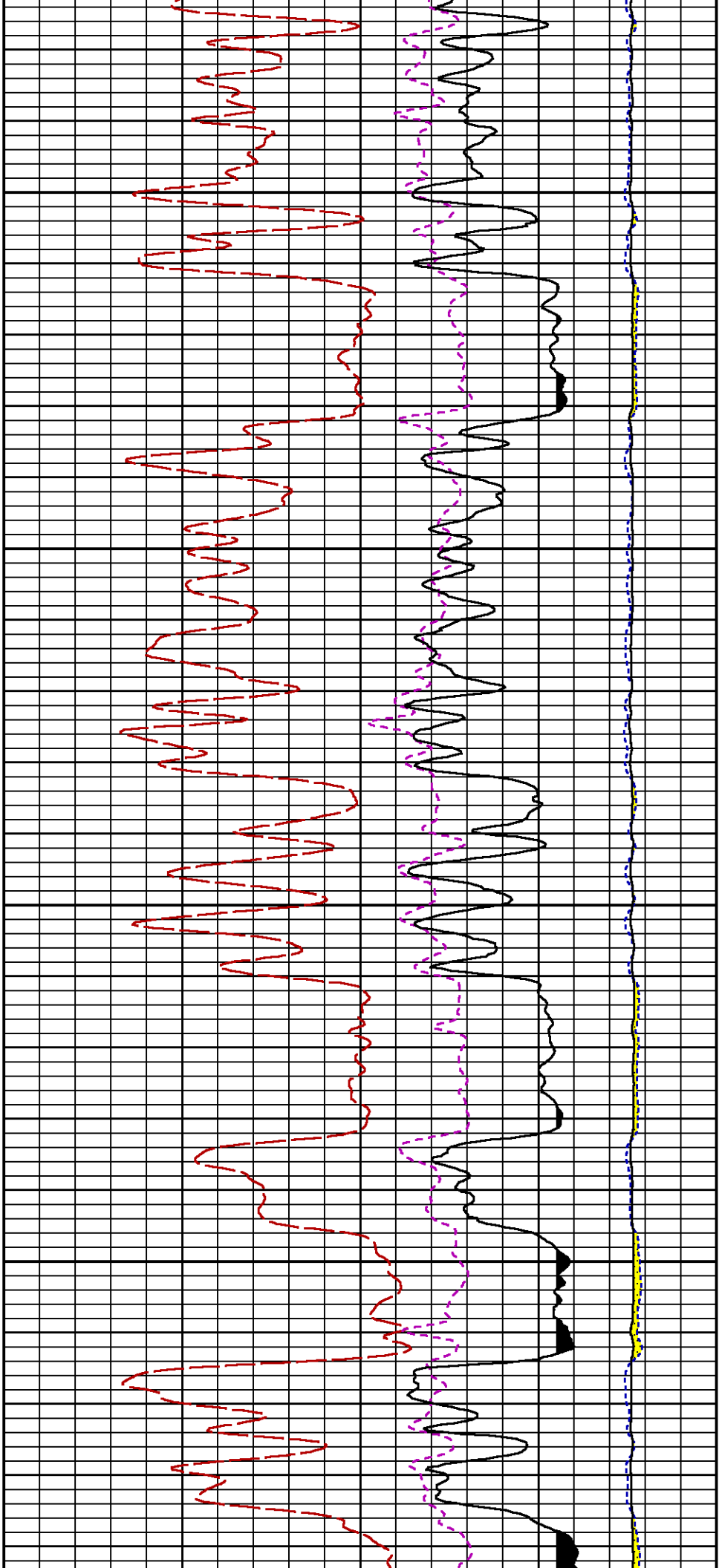


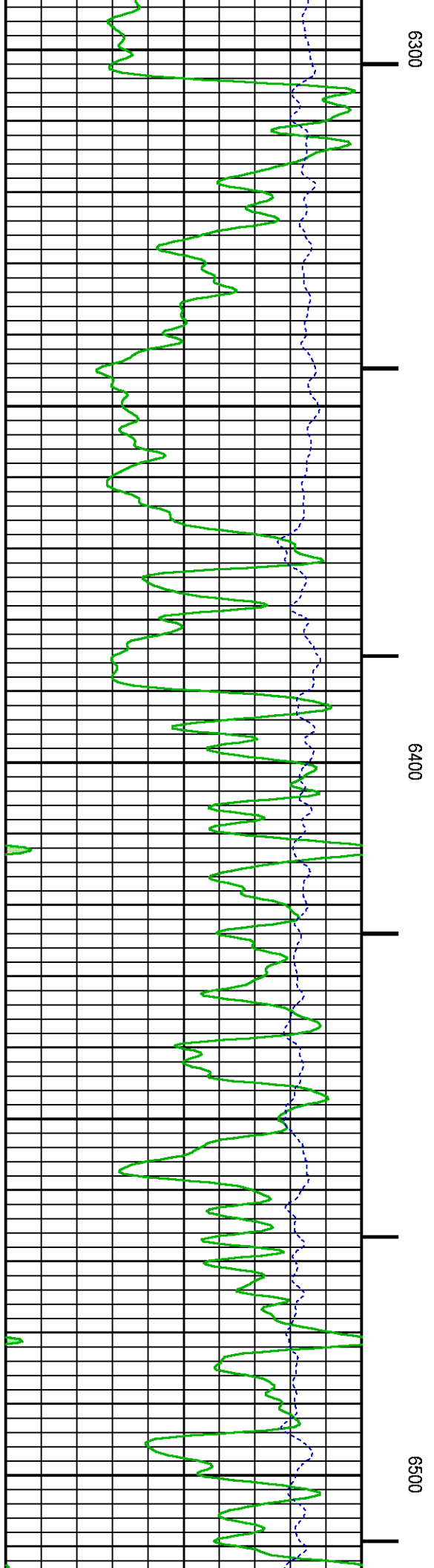
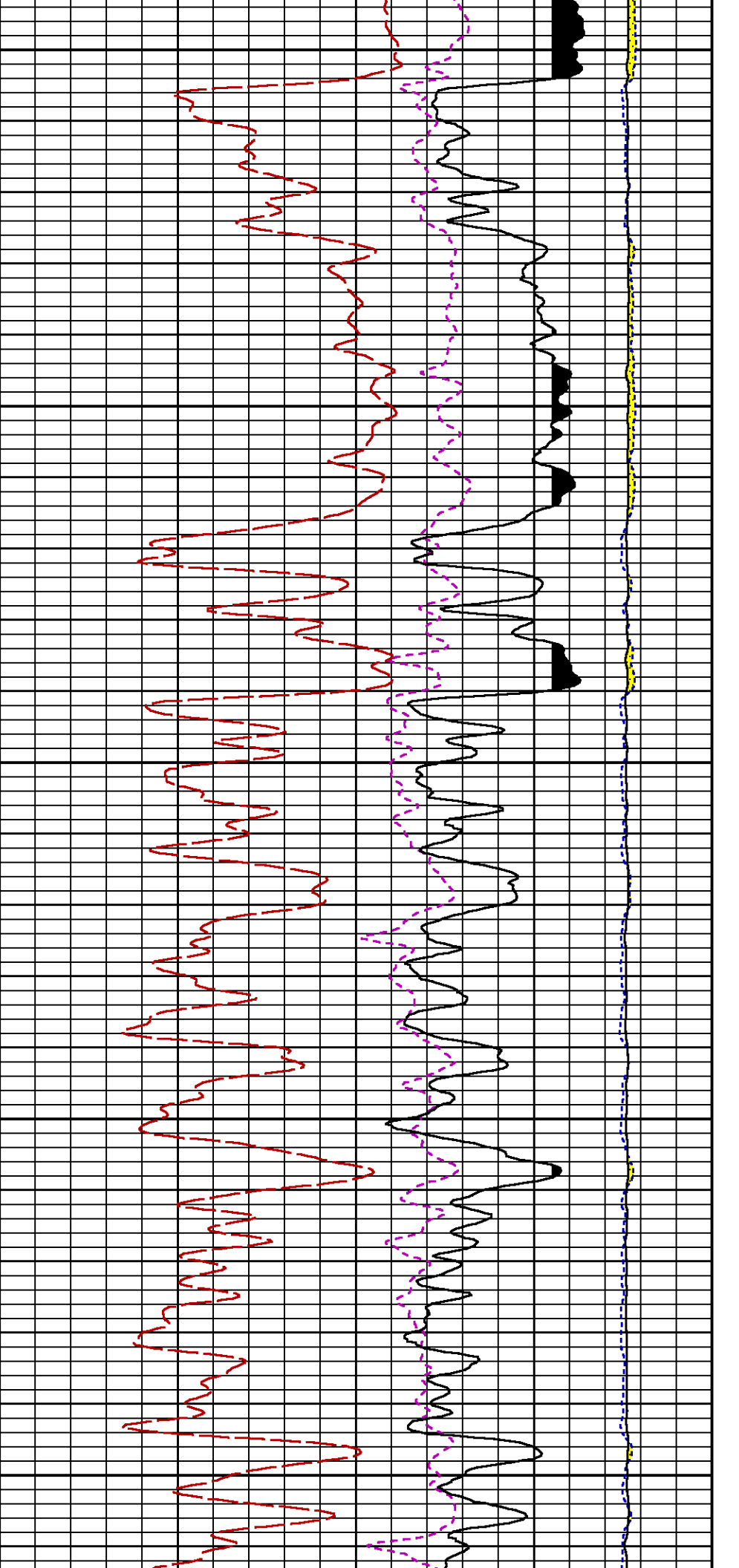


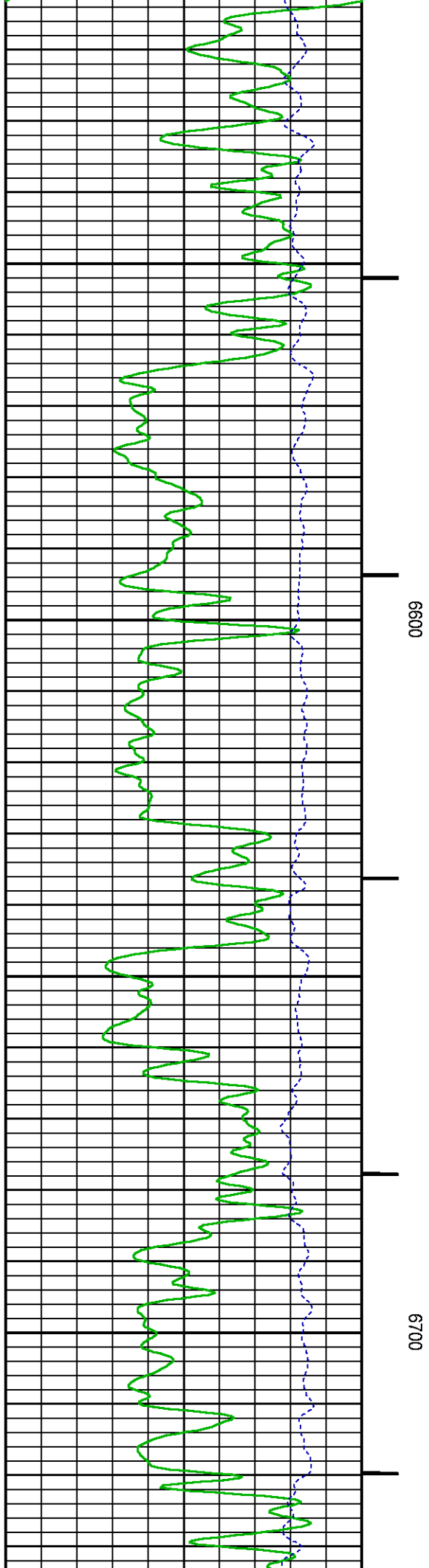
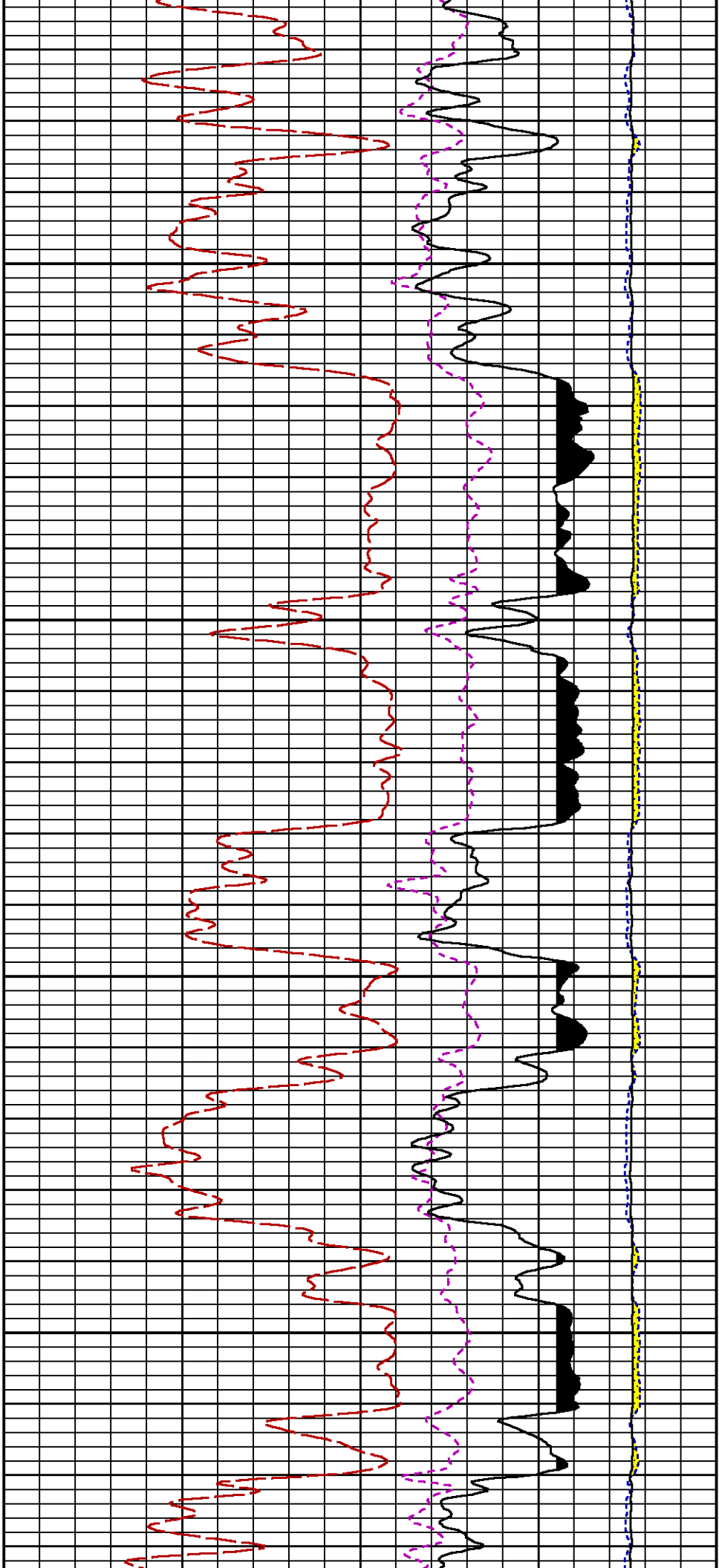


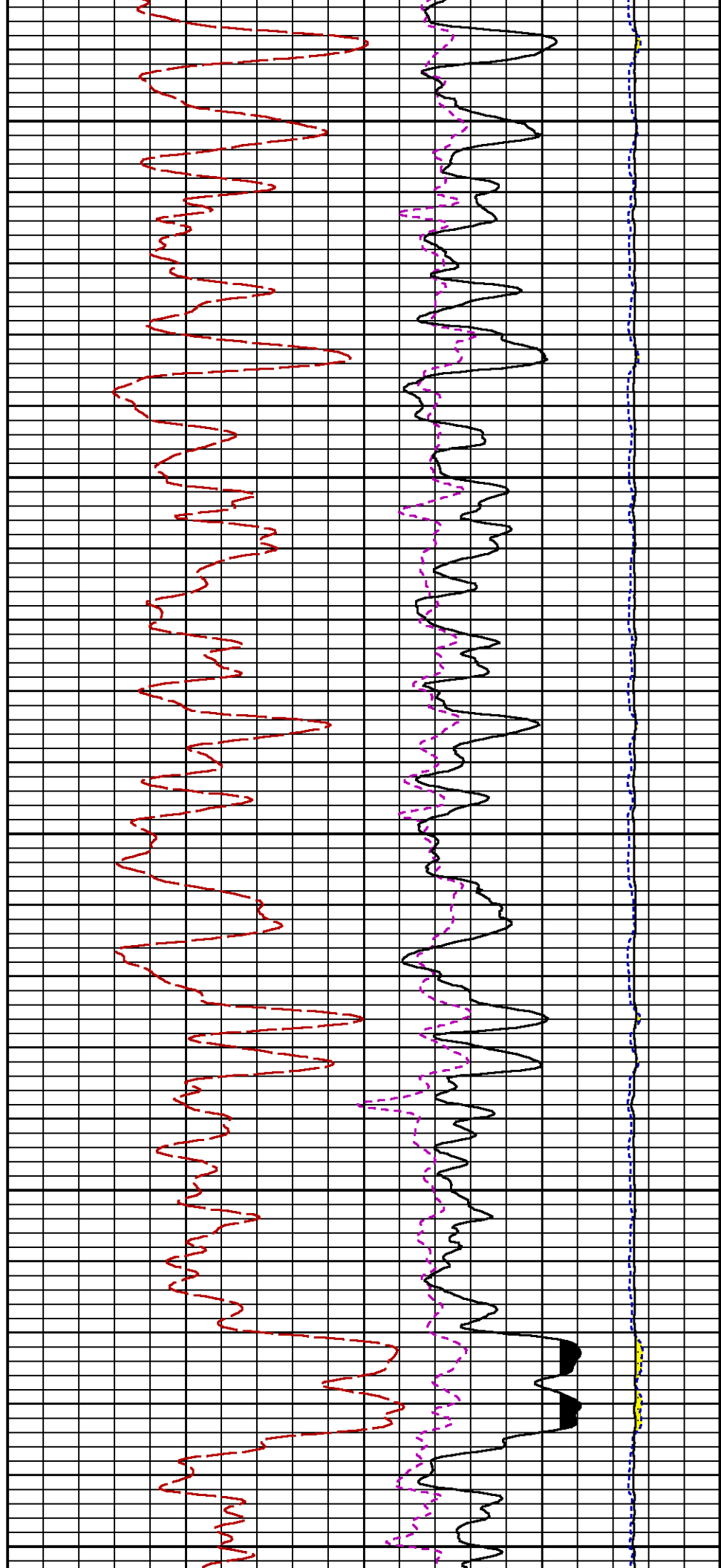
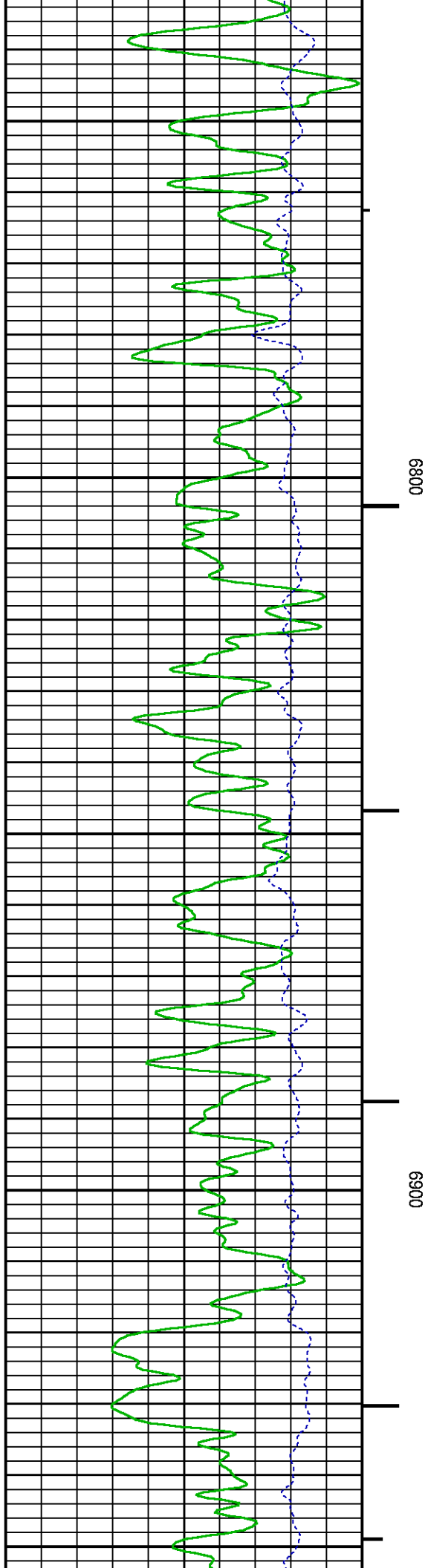


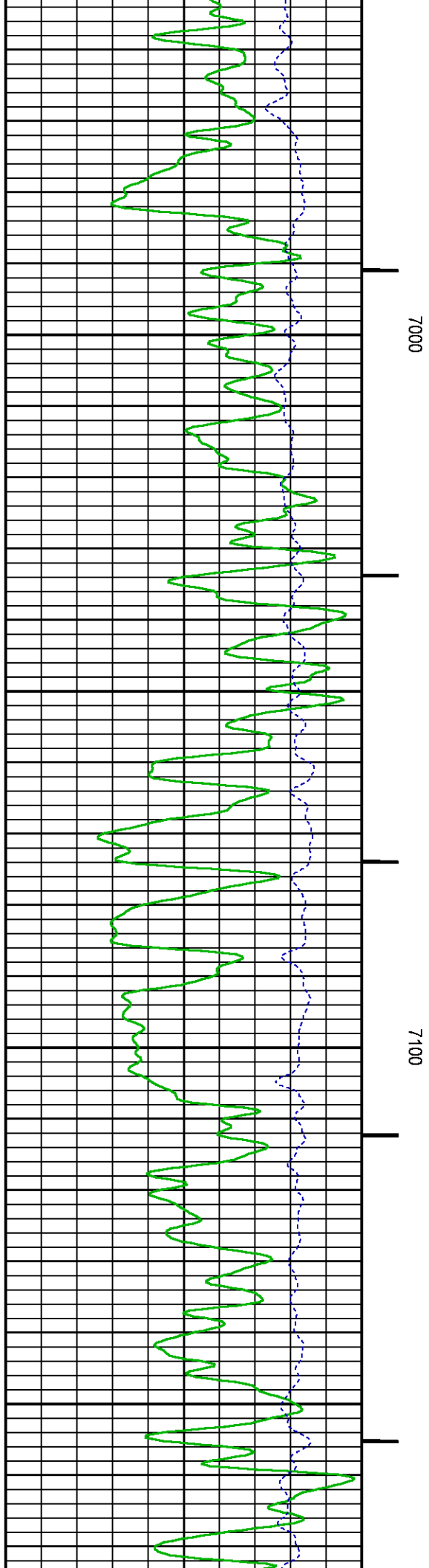
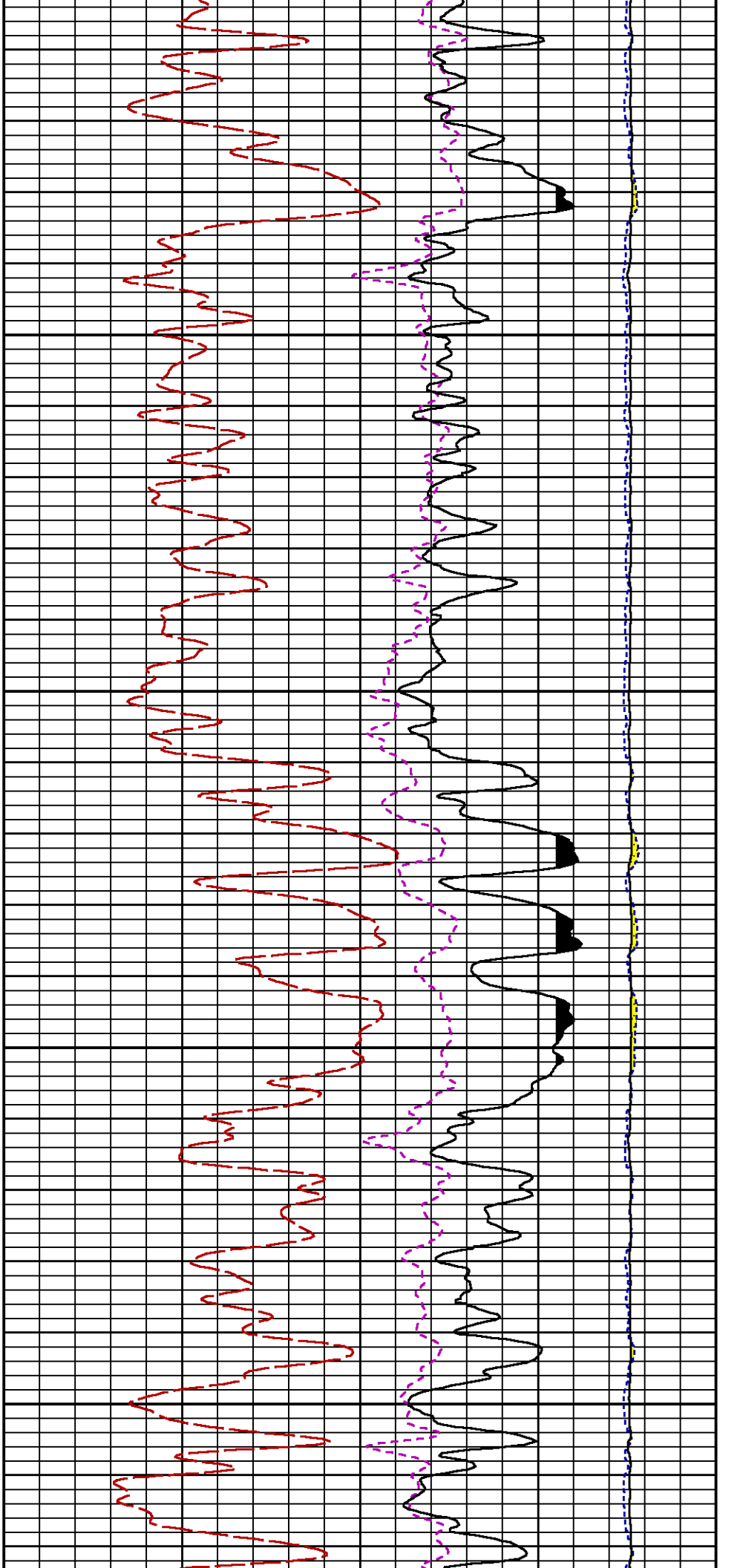


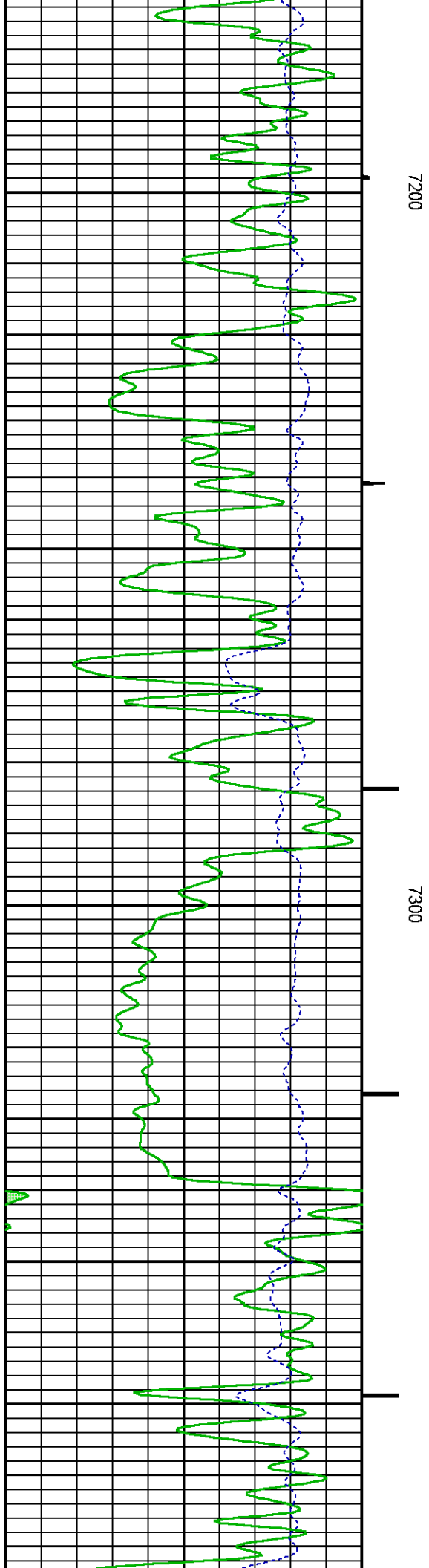
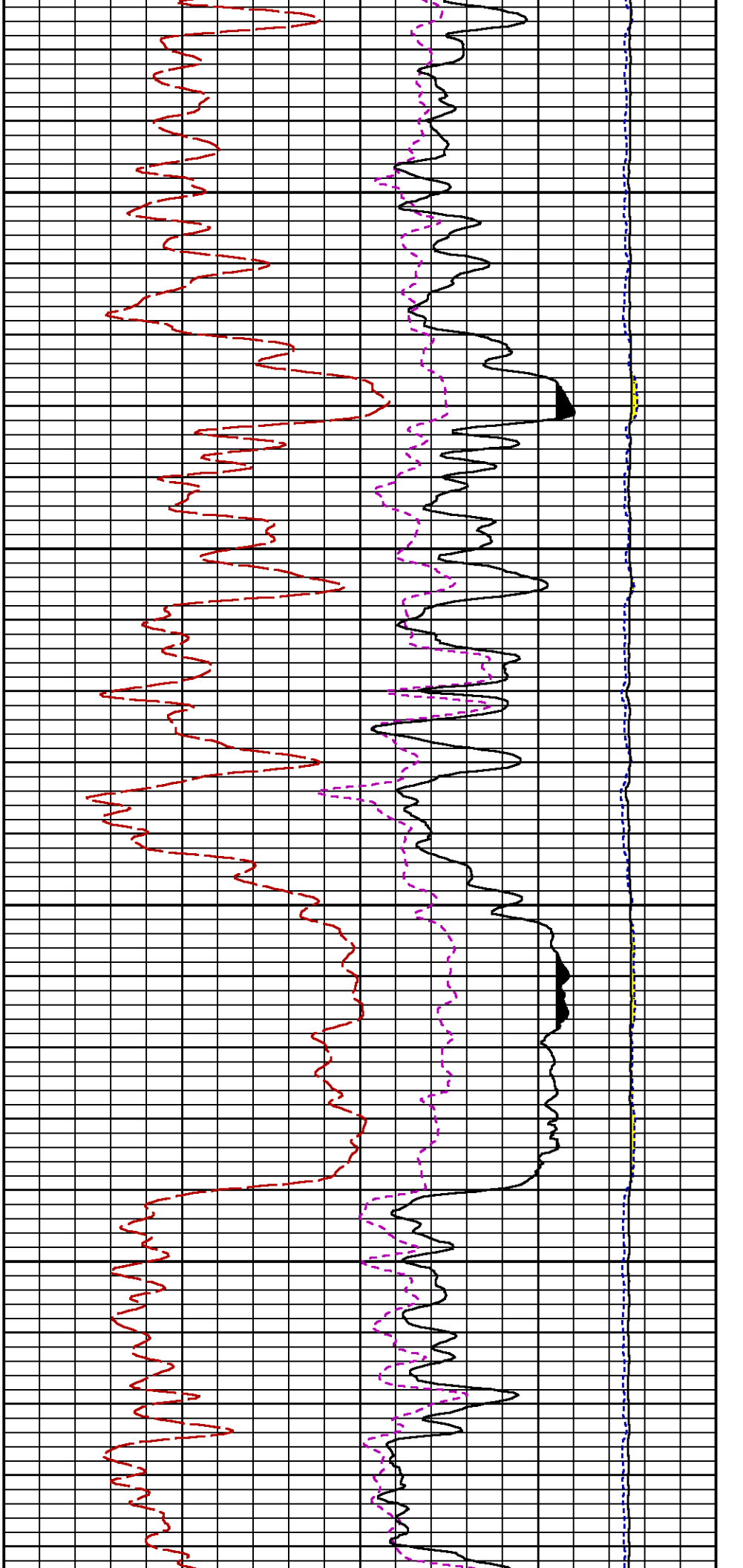


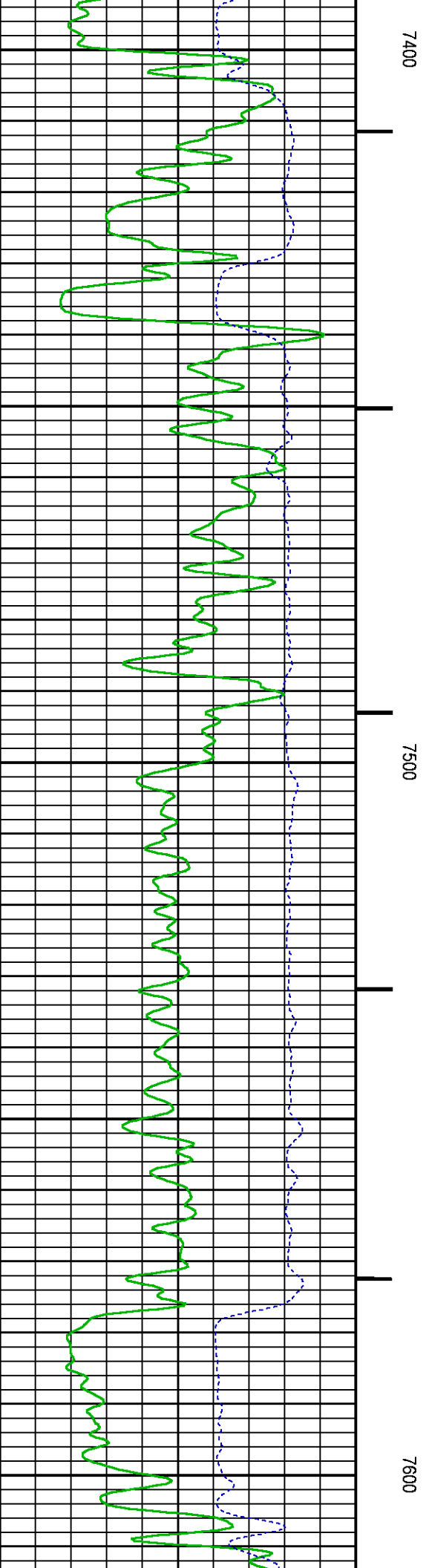
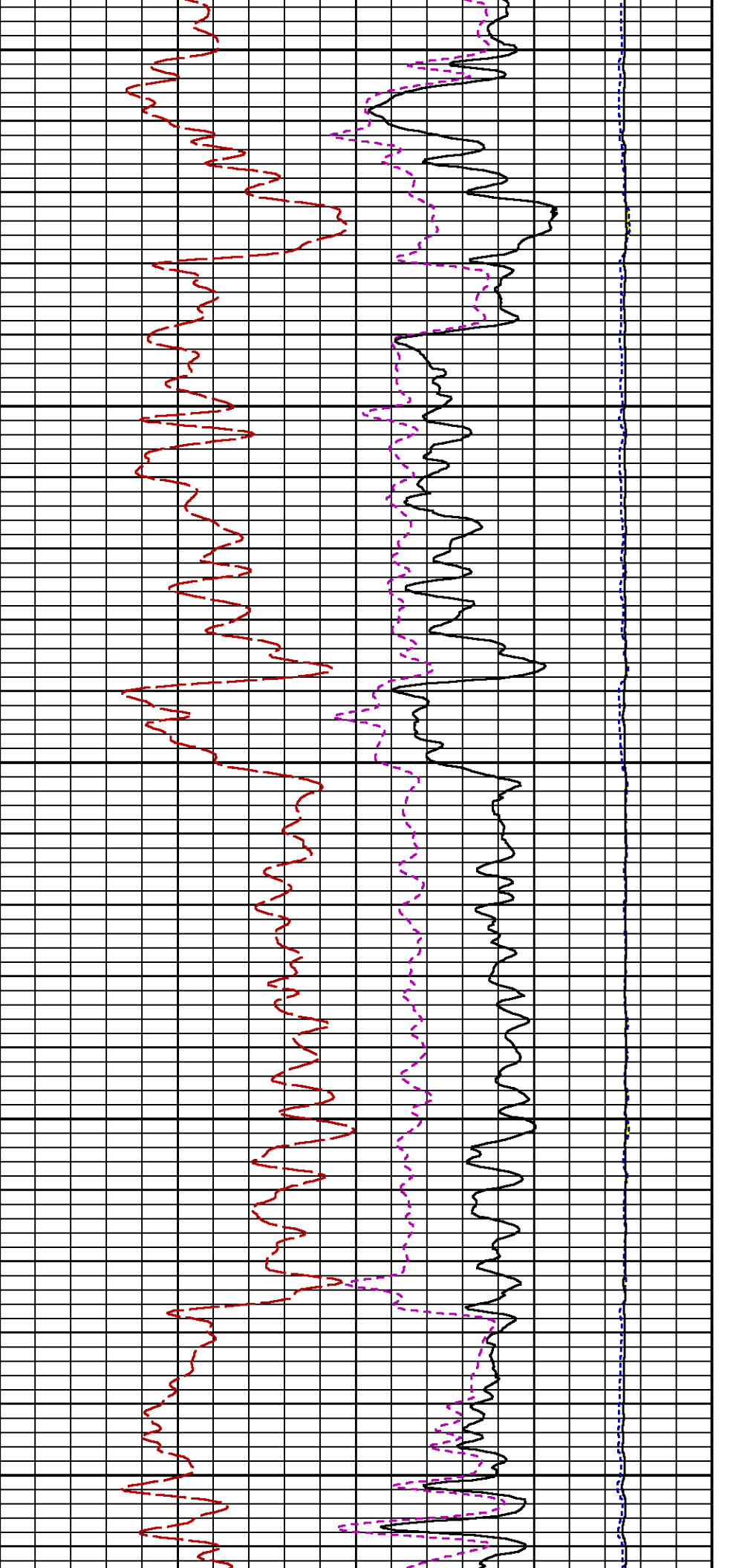


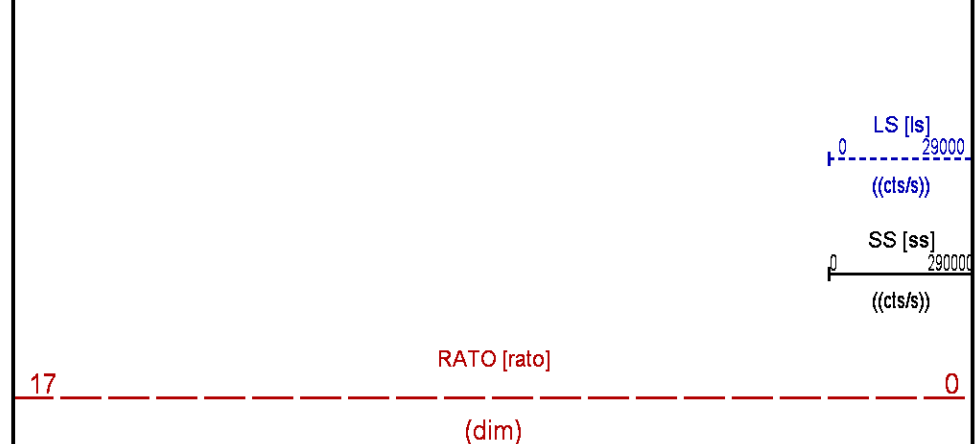
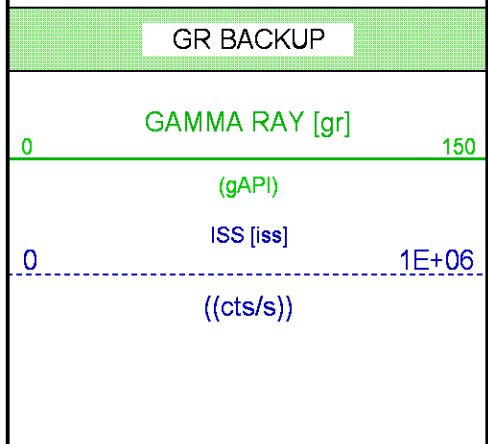
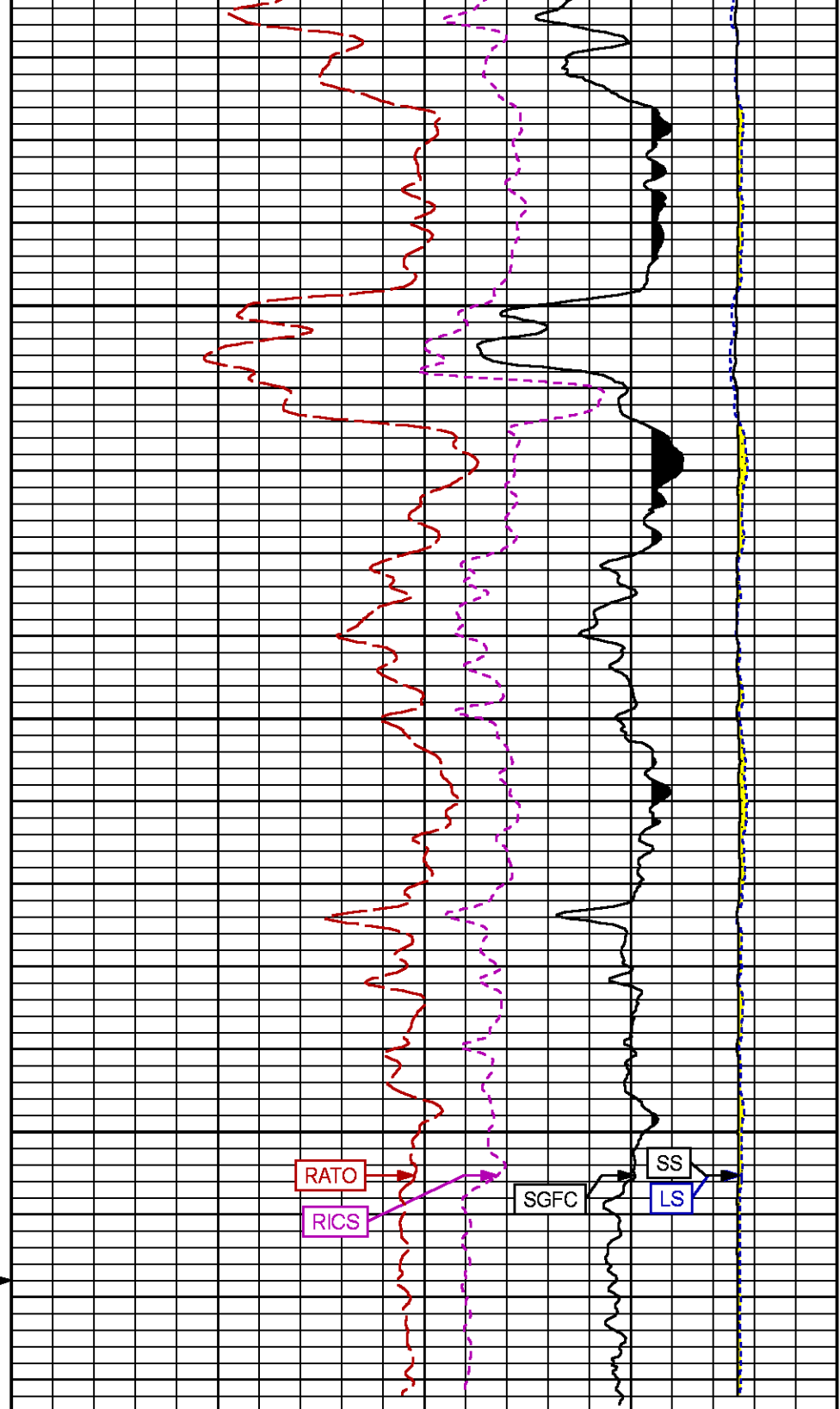
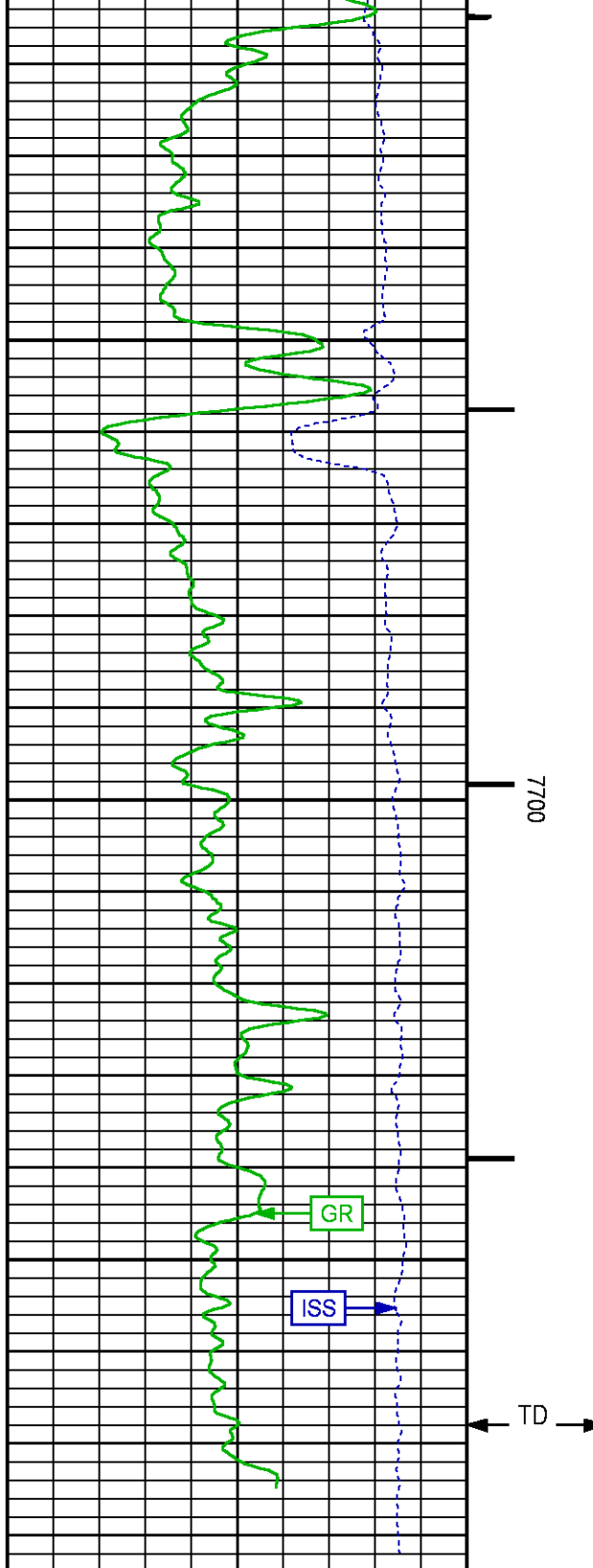












		RICS [rics]	9
		(dim)	
		SGFC [sgfc]	0
		(cu)	

REPEAT PASS PNC 3D MODE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
Patches: 3

Plotted: Sun Mar 18 16:17:23 2018

PARAMETER AND FILTER SUMMARY REPORT				
FILE: /dat1a/LARAMIE_NICHOLS_0994-13-21W/p353h01.prm LOGGING MODE: DEPTH DIRECTION: UP TOP DEPTH: 4848.500 ft BOTTOM DEPTH: 5100.614 ft				
SYMMETRIC FILTER				
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
GR	FILTER ()	medium (1)		TOP BOTTOM
RPM PROCESSING				
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
PNC Parameters	BOREHOLE CONTENTS	FLUID		TOP BOTTOM
	OPEN/CASED HOLE	CASED HOLE		" "
	BOREHOLE SIZE	7.88	in	" "
	LARGEST CASING OD	4.50	in	" "
	MATRIX	SANDSTONE		" "

CURVE DESCRIPTION REPORT		
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR	N/A	GAMMA RAY
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	N/A	SHORT SPACE COUNT RATE

CURVE MEASURE POINT OFFSET					
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-26.00	ISS	-12.75	RATO	-12.75
GR	-23.00	LS	-12.75	RICS	-12.75
				SGFC	-12.75
				SS	-12.75

Presentation : SysA:LARAMIE_RPM_REPEAT.fvpdf [5"/100' Scale]
Plot Interval : 4834.5 - 5108.75 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-13-21W/RPM_REPEAT.xtf
Created On : N/A
Company : LARAMIE ENERGY
Well : NICHOLS 0994-13-21W
Field : WEGA

Field : VEGA
File Interval : 4834.5 - 5110.25 Feet
OCT : p353h

GR BACKUP

GAMMA RAY [gr]

(gAPI)

ISS [iss]

((cts/s))

FEET

CCL
(mV)

4900

RATO [rato]

(dim)

RICS [rics]

(dim)

SGFC [sgfc]

(cu)

LS [ls]

((cts/s))

SS [ss]

((cts/s))

17

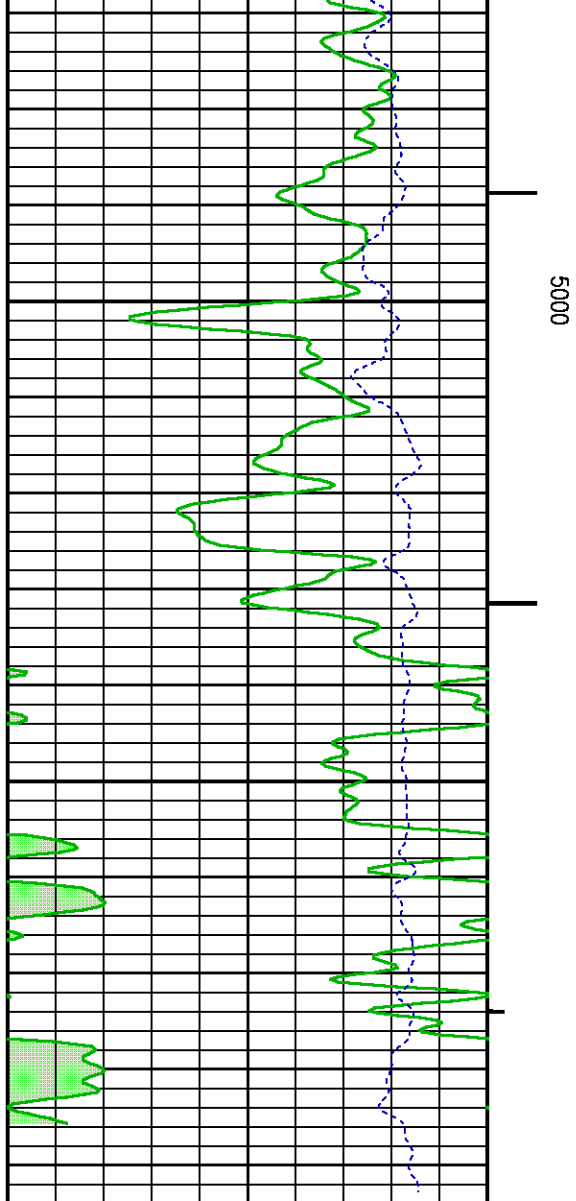
0

39

9

60

0



5000

GR BACKUP

GAMMA RAY [gr]

0 150

(gAPI)

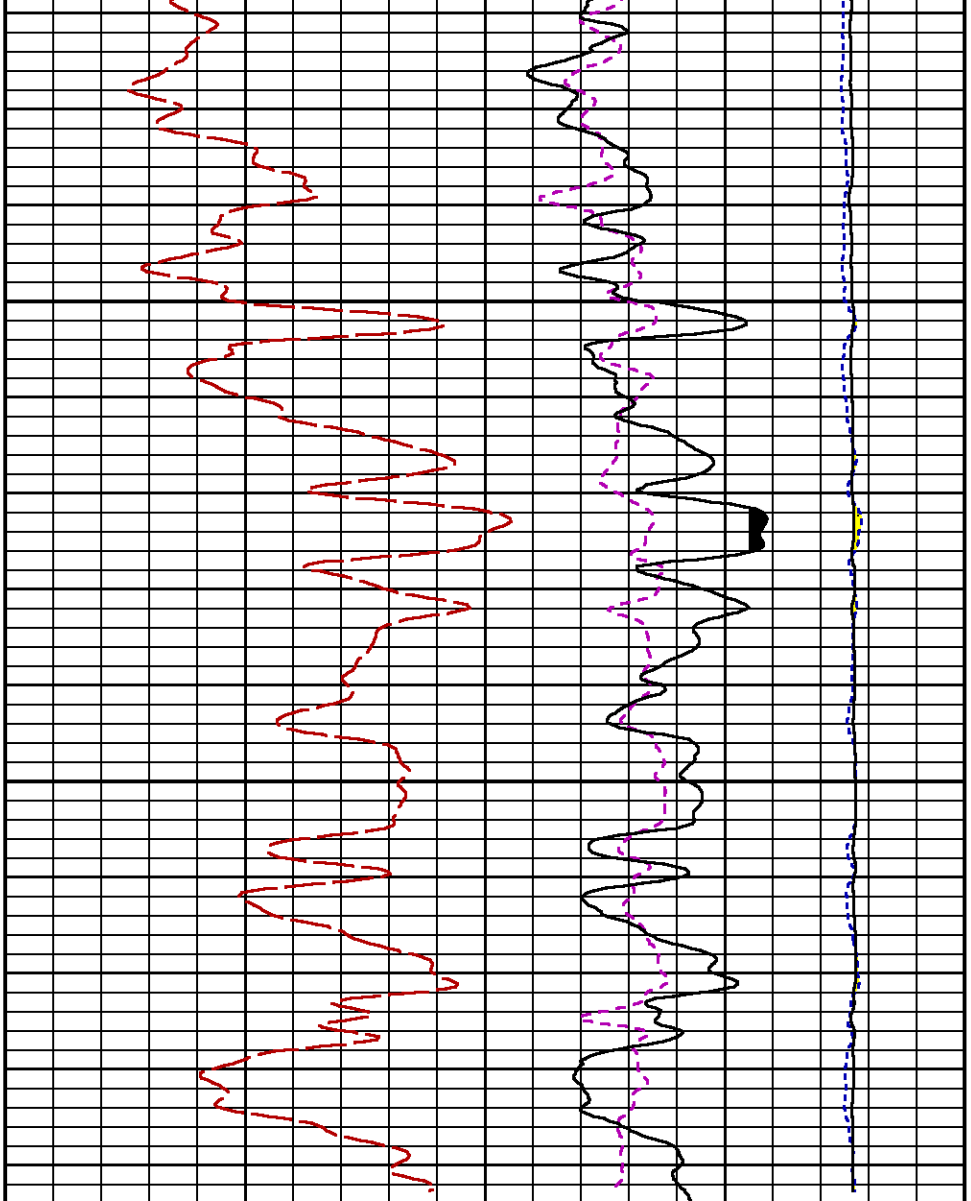
ISS [iss]

0 1E+06

((cts/s))

CCL
(mV)

FEET



LS [ls]

0 29000

((cts/s))

SS [ss]

0 290000

((cts/s))

RATO [rato]

17

0

(dim)

RICS [rics]

39

9

(dim)

SGFC [sgfc]

60

0

(cu)

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 8262XA 10317216

DATE/TIME PERFORMED: Sat Jan 20 08:55:31 2018

UNIT #: 4352 ML4352

CALB JIG #: 4702NK DA_228

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	58.42	336.96	278.5	0.664	38.80	223.80	185

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 8262XA 10317216

DATE/TIME PERFORMED: Sat Jan 20 08:58:00 2018

UNIT #: 4352 ML4352

VERI JIG #: 4702NK DA_228

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	59.02	336.93	0.664	39.20	223.79	184.59
						176.00 195.00

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10068031

DATE/TIME PERFORMED: Wed Mar 14 13:45:44 2018

UNIT: 5753XD 111111

CALIBRATOR: 2437XB GJSHOP

SOURCE: 8281AA 10047980

HOURS: 8281AA 15

	ISS	Mtr Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	813743	121	2165	2166	2262	97	7.0	0.9725
Interpolated	1300000	145	2147	2163	2258			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	813743	7003	1117	196	26.03	0.14	24.15	0.33
					25.35 26.40	0.00 0.20	23.60 24.80	0.00 0.40

	ISS	ILS	IXS	SS	SS2	LS	CSS	CLS
Raw Data	813743	172980	26637	92035	32769	8474	55643	13564
Fit Quality %		1.011	1.146	1.038	1.006	1.007	0.931	1.038

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	813743	1.43	4.70	30.56	14.63	10.86	3.87	4.10
		1.42 1.46	3.55 5.52	22.20 32.70	10.99 16.34	10.06 11.10	3.57 3.95	3.76 4.22
Fit Quality %		0.029	0.211	0.232	0.204	0.020	0.025	0.038
Reduced	1395444	1.43	4.72	30.61	14.67	10.86	3.87	4.10
		1.42 1.46	4.39 5.52	27.60 32.70	13.70 16.34	10.06 11.10	3.57 3.95	3.76 4.22

TPSETEMP PRIMARY CALIBRATION SUMMARY

TOOL #: 8255XA 166341

DATE/TIME PERFORMED: Fri Feb 9 11:57:12 2018

UNIT #: 5753XD 111111

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Temp	-1.865216E+01	1.008290E-01	4.283274E-07	1.750012E-11

TPSITEEMP PRIMARY CALIBRATION SUMMARY

TOOL #: 8255XA 166341

DATE/TIME PERFORMED: Fri Feb 9 11:58:25 2018

UNIT #: 5753XD 111111

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Ptfes	-1.279033E+01	1.023596E-01	3.753687E-06	-5.745945E-10

TPSPRES PRIMARY CALIBRATION SUMMARY

GAUGE #: 8255XA 166341

DATE/TIME PERFORMED: Fri Feb 9 12:15:25 2018

UNIT #: 5753XD 111111

	Temp	G	H	I	J
0		5.404341E+05	2.856945E+02	7.421320E-05	1.963967E-09
1		-2.525705E+02	2.896840E-02	7.709446E-07	-2.834983E-11
2		1.575603E+00	-2.390996E-04	-3.902487E-09	1.790438E-13
3		-3.156464E-03	5.410310E-07	6.600155E-12	-3.329160E-16
4		4.037484E-16	2.188692E-19	-8.807789E-24	3.671191E-26
Coef Test	200.0	5.276924E+05	2.862524E+02	1.251039E-04	7.924253E-10

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_NICHOLS_0994-13-21W/p353h~tdg

A3 CABLEHEAD
Diameter : 1.37"

PCM POWER SUPPLY
Diameter : 1.70"
Length : 3.86"
Weight : 18 lbs
Series : 8250EA
Mnemonic : PCM

TELEMETRY / CCL
Diameter : 1.70"
Length : 4.46"
Weight : 20 lbs
Series : 8248ED
Mnemonic : PCM
Measure Point: 1.00': CCL MP

GAMMA RAY
Diameter : 1.70"
Length : 3.02"
Weight : 15 lbs
Series : 8262XA
Mnemonic : GR
Measure Point: 0.89': GR MP

34.08'

CCL MP 26.03'

GR MP 22.90'

RPM ELECTRONICS
Diameter : 1.70"
Length : 4.48'
Weight : 16 lbs
Series : 8281EA
Mnemonic : RPM

RPM C DETECTOR SECTION

Diameter : 1.70"
Length : 9.40'
Weight : 41 lbs
Series : 8283PA
Mnemonic : RPM
Measure Point: 5.45': XLS MP
Measure Point: 5.04': LS MP
Measure Point: 4.79': SS MP

XLS MP 13.58'
LS MP 13.16'
SS MP 12.91'

RPM SOURCE SECTION

Diameter : 1.70"
Length : 4.70'
Weight : 18 lbs
Series : 8281FA
Mnemonic : RPM

TEMPERATURE / PRESSURE

Diameter : 1.70"
Length : 3.30'
Weight : 13 lbs
Series : 8255XA
Mnemonic : SRPL
Measure Point: 1.52': TEMP MP

TEMP MP 1.65'
PRES MP

BULL PLUG 1 11/16

0.00'

TOTAL LENGTH: 34.08'
TOTAL WEIGHT: 144 lbs
MAX DIAMETER: 0'1.70'



COMPANY
WELL
FIELD
COUNTY

LARAMIE ENERGY II LLC
NICHOLS 0994-13-21W
VEGA
MESA

STATE COLORADO

FILE NO:

API NO:

05077104130000

LOCATION:

SHL 1779 FNL 2787 FEL
BHL 151 FNL 1606 FEL

ELEVATIONS:

KB 7161 FT
DF





SEC <u>24</u>	TWP <u>9S</u>	RGE <u>94W</u>	GL <u>7137 FT</u>
			DATE <u>18-Mar-2018</u>